



# **COOK**

## **Activity Plans**

**SKILLEDTRADES<sup>BC</sup>**

# Cook

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# Exploring the Culinary Arts—Professionalism

## Description

This will be the students' introduction to the concept of *professionalism*. Students will brainstorm what they consider to be the professional traits of a chef. The teacher can use “scenario cards” for the students to re-enact or demonstrate the professional traits. The students will understand what personal behaviour traits are and their importance in a professional's career choice.

## Lesson Outcomes

Students will be able to apply the professional traits of a chef by:

- displaying a positive attitude toward their job
- developing endurance
- demonstrating the ability to work well with others
- demonstrating their eagerness to learn
- demonstrating their dedication to producing quality foods, and
- understanding the importance of experience.

Students will be able to apply the personal behaviour traits of a chef:

- by balancing their professional and personal lives
- while understanding and managing stress, and
- by developing and maintaining good health

## Assumptions

The teacher will become familiar with:

- the correct attire for a chef, and will dress accordingly
- the professional traits of a chef, and
- will demonstrate these traits in class

## Terminology

**attitude:** Attitude is the expression of a person's favour or disfavour of particular person, place, thing, or event.

**chef:** A chef is a professional trained and skilled in preparing food.

**professionalism:** Professionalism relates to a job that requires special training and experience, skills and qualities to become a member of a profession.

**stress:** Stress is state of mental, emotional, or physical strain or tension that results from demanding conditions.



## Estimated Time

2 70-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 52–93.

BC Cook Articulation Committee. *Working in the Food Service Industry*. Go2HR.

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<https://opentextbc.ca/workinginfoodserviceindustry/>

# Demonstrating Skills And Knowledge

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## Procedure

This Activity Plan will introduce the student to the personal and professional traits of a chef. The students will be expected to demonstrate these traits on a daily basis.

### Day 1: Professional Traits of a Chef

This will be a teacher-led activity. The teacher can brainstorm with students what it means to be a professional. The teacher can then ask the class to brainstorm the traits of a professional chef. Using the list provided by the students, the teacher can lead the discussion into what the actual traits are.

### Day 2: Personal Traits of a Chef

The teacher will list the personal traits on the board. The students will work in pairs and brainstorm situations that demonstrate these personal traits in the workplace. Students can then share their examples with the rest of the class. The teacher will need to make sure the examples the students invent are correct.

## Evaluation Guidelines

**Safety:** This is a continuing objective that can be evaluated by observing whether students demonstrate the professional and personal traits of a chef in class.

**Tools and equipment:** This is a continuing objective that will be assessed using formative methods; students will show evidence of learning by demonstrating the professional traits of a chef.

## Extension Activities

The teacher could extend this lesson by asking students to identify these traits in themselves and how they could improve these traits in themselves.

Interview a chef or email a chef and ask them what characteristics they have that make them a professional chef.

Have students identify the different working requirements for bakers, butchers, breakfast chefs, etc.

Students will be continuously evaluated on this topic throughout the course.



# Safety Data Sheets

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## Description

In this activity students are introduced to the Workplace Hazardous Materials Information System (WHMIS) and the Safety Data Sheet (SDS). They will gain an understanding of both and will be able to identify the three aspects of the SDS.

## Lesson Objectives

Students will be able to:

- summarize the meaning and purpose of WHMIS
- recognize the purpose of an SDS
- identify the parts of an SDS, and
- demonstrate the ability to use an SDS.

## Assumptions

The teacher will become familiar with:

- the chemicals that are available in the kitchen and their appropriate uses, and
- WHMIS and the safety data sheets for the chemicals found in the kitchen.

## Safety Considerations

The class may be handling bottles of chemicals; safety considerations will need to be addressed.

## Terminology

**cautionary labelling:** Cautionary labelling is labelling placed on containers of hazardous chemicals as a warning for users.

**hazard classification:** Hazards are grouped as a physical hazard or a health hazard. Hazards are further divided into categories that explain their severity.

**safety data sheet (SDS):** Safety data sheets are technical sheets that provide safe handling information and emergency procedures for hazardous products.

**Workplace Hazardous Material Information System (WHMIS):** WHMIS is Canada's national hazard communication standard.

## Estimated Time

1 70-minute class



## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Materials

- SDS sheets for chemicals used in Foods room/kitchen
- Access to chemicals used in the Foods room, teaching kitchen, etc.

## Resources

*Trades Access Common Core, Line A: Safe Work Practices, Competency A-3: Handle Hazardous Materials Safely.* Pages 31–35. Camosun College.

Open textbook available online via the **Creative Commons Attribution 4.0 Unported License**.  
<https://open.bccampus.ca/find-open-textbooks/?uuid=3c98762d-0a2c-4416-a3ba-62722fdf403a&contributor=Common%20Core&keyword=&subject=Common%20Core>

SDS sheets for chemicals used in the Foods room/kitchen

Draz, John, and Christopher Koetke. *The Culinary Professional. 3rd ed.* Goodheart-Willcox, 2017. Pages 107–108.

# Demonstrating Skills And Knowledge

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## Procedure

This Activity Plan will be the students' introduction to safety data sheets. The students will understand the importance of the safety data sheets and how to actively use the information on the sheets.

## How to Use a Safety Data Sheet

- This will be a teacher-led activity. The teacher will write on the board “What chemicals are found in the kitchen?” Students will then brainstorm the different chemicals. The students may not know the names of the chemicals, but they should be able to describe the functions of, for example, cleaning supplies, bleach, grease cutters, or polishes. The teacher could send students to gather the chemicals that are used in the kitchen for each of the functions mentioned above. The class can then take a look at the containers and examine the labels. The teacher would then inform the class that the information on the back label is part of the Workplace Hazardous Material Information System (WHMIS), which is Canada's national hazard communication standard. The teacher will then discuss the three key elements of WHMIS (hazard classification, cautionary labelling, and safety data sheets).
- The teacher will discuss the purpose of the SDS and the three key areas of the SDS: providing specific hazard information, safe handling and storage procedures, and the emergency procedures for that chemical. The teacher should make the students aware of the fact that the safety data sheet is a key source of information. The teacher will hand out copies of the SDS sheets for the chemicals in the kitchen and read them over with the class. Students should know how to read the safety data sheets. As an assignment the teacher will give examples of emergency situations in the kitchen and have the students read over the sheets and come up with proper safety sanitation procedures for that chemical

## Evaluation Guidelines

**Safety:** This is a continuing objective.

## Appendix Acknowledgment

© Camosun College. *Trades Access Common Core: Competency A-3: Handle Hazardous Materials Safely*. Pages 31–35. The Trades Access Common Core resources are licensed under the Creative Commons Attribution 4.0 Unported Licence (<http://creativecommons.org/licenses/by/4.0/>), except where otherwise noted.

## Appendix: Handle Hazardous Materials Safely

### 1. Explain the hazardous products legislation

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The most important concept to remember about handling hazardous material is that you are responsible for your own safety and the safety of others.

#### Purpose of WHMIS

The Workplace Hazardous Materials Information System (WHMIS) is Canada's national hazard communication standard. The overall purpose of WHMIS is to help ensure a safer, healthier workplace. WHMIS is also known as the *Right to Know* requirement. Your knowledge about the workplace is your biggest asset in successfully understanding and benefiting from WHMIS.

#### Legislation

WHMIS is implemented through a combination of federal and provincial legislation. The main purpose of the federal WHMIS legislation is to require the suppliers of hazardous materials used in the workplace to provide health and safety information about their products as a condition of sale. The main purpose of the provincial WHMIS legislation is to require employers to obtain health and safety information about hazardous materials in the workplace and to pass this information on to workers.

There are a number of pieces of federal legislation that implement WHMIS:

- The **Hazardous Products Act** places duties on suppliers to provide up-to-date labels and safety data sheets (SDSs) to their customers.
- The **Hazardous Products Regulation**, established January 30, 2015, under the amended Hazardous Products Act defines what a hazardous product is and sets the classifications, labelling, and required information to be found on SDSs. This regulation has replaced the previous Controlled Products Regulations (CPR) and the Ingredient Disclosure List.
- The **Hazardous Materials Information Review Act** establishes the Hazardous Materials Information Review Commission, which is the federal agency that rules on claims for exemption from disclosing confidential business information. This Act also defines the type of information a supplier or employer may withhold from a label or SDS.
- The **Hazardous Materials Information Review Regulations** set out the criteria that the commission uses when assessing the validity of a claim for exemption. They also set out the fees for filing a claim for exemption or appealing a decision of the commission.

#### Globally Harmonized System

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is an internationally agreed-upon system, created by the United Nations. It was designed to replace the various classification and labelling standards used in different countries by using consistent criteria for classification and labelling on a global level. Its development began at the United Nations Rio Conference in 1992.

Many countries have had different systems for classifying and labelling chemical products. Several different systems have existed even within the same country. This situation has been confusing for workers who need to understand the hazards of chemicals in order to work safely. It has also been costly for companies who have to comply with many different systems, and it has also been expensive for governments to regulate and enforce. The goal of GHS is that the same set of rules for classifying hazards and the same format and content for labels and SDSs will be adopted and used around the world.

In December 2011, the Joint Action Plan for the Canada-U.S. RCC was announced. It included a key commitment to “align and synchronize implementation of common classification and labeling requirements for workplace hazardous chemicals within the mandate of the U.S. Occupational Safety and Health Administration (US-OSHA) and Health Canada.”

In Canada on June 19, 2014, legislative amendments to the Hazardous Products Act (HPA), as well as consequential and coordinating amendments to some other federal Acts, including the Hazardous Materials Information Review Act, received Royal Assent. Health Canada then repealed and replaced the Controlled Products Regulations (CPR) with the new regulations to be called the Hazardous Products Regulations (HPR) in order to implement the GHS. These changes would then result in changes to federal, provincial, and territorial occupational health and safety (OHS) legislation and regulations.

WHMIS first came into effect in 1988 through a series of complementary federal, provincial, and territorial laws and regulations. The application of GHS for workplace chemicals in Canada did not fundamentally change the roles and responsibilities for suppliers, employers, and workers in WHMIS, but rather incorporated GHS elements into the existing system which applied the new standardized classification rules, label requirements, and safety data sheet (SDS) formats, synchronizing WHMIS with the mandate of the Joint Action Plan.

For the sake of clarity, the original WHMIS is now referred to as *WHMIS 1988*. The updated version is called *WHMIS 2015*.

## Hazardous products

WHMIS defines a hazardous product as a product that poses a physical or health hazard that meets or exceeds criteria for inclusion in one or more of the 31 WHMIS hazard classes. Some of those hazard classes are further divided into categories, also called *types*. The product suppliers classify these products and assign one or more of the appropriate pictograms (symbols) that must appear on the applicable supplier labels.

WHMIS provides information about many hazardous materials used in the workplace, referred to as *hazardous products*. Under WHMIS, workers have the right to receive information about each hazardous product they use—its identity, hazards, and safety precautions. This information is to be used to reduce exposure to hazardous materials.

## Products not covered by WHMIS

Some hazardous products are covered by other legislation and therefore are either exempt or excluded from WHMIS requirements. They will have labelling and hazard information meeting their legislative requirements. The products excluded from WHMIS are:

- explosives (as defined in the Explosives Act)
- cosmetics, devices, drugs, or foods (as defined in the Food and Drugs Act)
- pest control products (as defined in the Pest Control Products Act)
- consumer products (as defined in the Canada Consumer Product Safety Act)
- wood or products made of wood
- nuclear substances, within the meaning of the Nuclear Safety and Control Act, that are radioactive
- hazardous waste (being a hazardous product that is sold for recycling or recovery and is intended for disposal)
- tobacco and tobacco products (as defined in the Tobacco Act)
- manufactured articles

## Recognition of rights and responsibilities

WHMIS specifies the duties for suppliers, employers, and workers.

### Suppliers

Suppliers of hazardous products must ensure the products are properly classified and provide up-to-date SDSs for all hazardous products they sell or produce. If new significant data becomes available about a product, the supplier must provide an updated SDS within 90 days of becoming aware of the changes. Suppliers must also provide supplier labels on all containers of hazardous products they sell or produce.

### Workers

Workers must know and understand the information on all labels and SDSs. They must use the information they receive through education and training to handle hazardous products safely.

### Employers

Employers must ensure that there is an up-to-date SDS for each hazardous product supplied to the workplace. Copies of supplier and employer SDS must be accessible to employees. The sheets must be placed close to work areas and made available during each work shift. Workers must be taught what to look for in a data sheet, and they must be given an opportunity to become familiar with the information the sheets carry. Employers are responsible for workplace labels when required.

While some products, covered by other legislation, may be exempt from all of the WHMIS requirements employers must still provide education and training on the health effects, safe use, and storage of these products.

## Regulators

WorkSafeBC staff administer WHMIS legislation. This includes providing general information about WHMIS to employers and workers as well as ensuring compliance with both federal and provincial WHMIS legislation.

## Hazardous product classifications

There are two groups of hazardous products: those posing physical hazards and those posing health hazards. The products within these two hazard groups are further divided into hazard classes. A hazardous product may fall into more than one hazard class.

### Physical hazards

The physical hazards group includes the following hazard classes:

- combustible dusts
- corrosive to metals
- flammable aerosols
- flammable gases
- flammable liquids
- flammable solids
- gases under pressure
- organic peroxides
- oxidizing gases
- oxidizing liquids
- oxidizing solids
- pyrophoric gases
- pyrophoric liquids
- pyrophoric solids
- self-heating substances and mixtures
- self-reactive substances and mixtures
- simple asphyxiants
- substances and mixtures which, in contact with water, emit flammable gases
- physical hazards not otherwise classified

**Note:** Explosives are not included in WHMIS 2015 because they are covered by other legislation.

## Health hazards

The health hazards group includes the following hazard classes:

- acute toxicity
- aspiration hazard
- biohazardous infectious materials
- carcinogenicity
- germ cell mutagenicity
- reproductive toxicity
- respiratory or skin sensitization
- serious eye damage/eye irritation
- skin corrosion/irritation
- specific target organ toxicity - single exposure
- specific target organ toxicity - repeated exposure
- health hazards not otherwise classified

**Note:** An environmental hazards group exists in GHS. This group (and its classes) was not adopted in WHMIS 2015 since it is beyond the direct scope of WHMIS legislation (i.e., workplaces). However, you may see the environmental classes listed on labels and SDSs.

## Hazard categories

Within each hazard class there will be at one category or type. Categories use numbers, whereas types use letters. Some hazard classes may have only one category within them. The categories will give the severity of the hazard within the class. For example, a Category 1 oxidizing liquid is more hazardous than a Category 2 oxidizing liquid. In some cases the categories may be broken into subcategories (for example, 1A and 1B); in this case, 1A would be a greater hazard than 1B.

There are some exceptions to the rule of categories identifying the level of hazards severity. For example, for the “Gases under pressure” hazard class, the hazard categories are “Compressed gas,” “Liquefied gas,” “Refrigerated liquefied gas,” and “Dissolved gas.” These categories relate to the physical state of the gas when packaged and do not describe the degree of hazard.



Now complete the Self-Test.

## Self-Test 1

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1. What level of government is responsible for creating WHMIS?
  - a. Federal
  - b. Provincial
  - c. Municipal
  - d. Federal and provincial
2. What do the letters in WHMIS stand for?
  - a. Workplace Help Make It Safe
  - b. Worksite Hazard Made Isolated Standards
  - c. Workplace Hazardous Material Information System
  - d. None of the above
3. What is WHMIS also known as?
  - a. SDS
  - b. Shop rules
  - c. Hazard labels
  - d. The Right to Know requirement
4. Which federal legislation places responsibilities on suppliers to provide up-to-date SDSs with their products?
  - a. Federal Labelling Law
  - b. Hazardous Products Act
  - c. Controlled Substance Act
  - d. The Name It Right requirement
5. What does WHMIS call a pure substance or mixture that meets or exceeds criteria for inclusion in one or more of the WHMIS hazard classes?
  - a. Hazardous product
  - b. Dangerous mixture
  - c. Hazardous compound
  - d. Pure problematic substance

6. Who is responsible for providing up-to-date SDSs on hazardous products they sell or produce?
  - a. Owner
  - b. Worker
  - c. Supplier
  - d. Employer
7. Who is responsible for ensuring SDSs are available in the work area for all known hazardous products used?
  - a. Owner
  - b. Worker
  - c. Supplier
  - d. Employer
8. Who is responsible for the worker understanding the safe use of hazardous materials?
  - a. Owner
  - b. Worker
  - c. Supplier
  - d. Employer
9. Where are SDSs supposed to be found?
  - a. Supervisor's truck
  - b. WorkSafeBC officer's truck
  - c. Close to the work area and made available at all times
  - d. In worker's information booklet handed out at orientation
10. What do the letters SDS stand for?
  - a. Safe dos and don'ts
  - b. Safety data sheet
  - c. Safer data specifications
  - d. Substance descriptor and safety
11. What are the two groups of hazardous products?
  - a. Dusts and metals
  - b. Gases and liquids
  - c. Health and physical hazards
  - d. Oxidizing and respiratory hazards

## 2. Describe the key elements of WHMIS

After a hazardous product has been classified, the following three WHMIS elements are used to communicate health and safety information:

1. Labelling
2. Safety data sheets (SDS)
3. Education and training

### Labelling

When a supplier produces or imports a hazardous product for distribution and sale in Canada, that supplier must prepare a label that must be clearly and prominently displayed on the container. These labels are the first alert to users about the major hazards of the product. They also outline basic precautions that should be taken. The label shown in Figure 1 is one example of an acceptable supplier label.

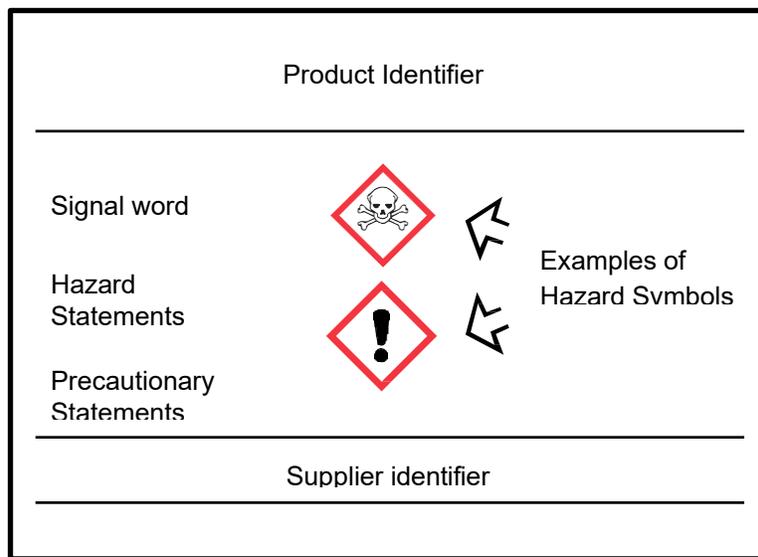


Figure 1—Supplier label

### Safety data sheets

A safety data sheet is a technical bulletin that provides specific hazard information, safe handling information, and emergency procedures for a hazardous product. Since the SDS contains detailed health and safety information specific to each hazardous product, it should be used as a key source of information for developing training programs and safe work procedures. It is also a valuable reference source of health and safety information for workers, health and safety committees, and emergency service personnel.

## Education and training

The employer provides education and training for workers so that they can work safely with and near hazardous products. Workers need to know how WHMIS works, the dangers of hazardous products in their workplace, and the procedures they must follow to work safely with the products.



Figure 2—WHMIS information flow

Workers should be able to answer these questions for every hazardous product they work with:

- What are the hazards of the product?
- How do I protect myself from those hazards?
- What do I do in case of an emergency?
- Where can I get further information?



Now complete the Self-Test.

## Self-Test 2

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1. How do suppliers make known the risks and hazards associated with a hazardous product?
  - a. Online courses
  - b. Over-the-counter instructions
  - c. Product labels and technical bulletins
  - d. Suppliers are not required to provide this information.
2. What responsibilities do employers have in the WHMIS program?
  - a. Provide education and training
  - b. Create product labels and technical bulletins
  - c. Employers are exempt from responsibility in the WHMIS program.
  - d. Provide first aid treatment in the case of exposure to hazardous products
3. Which WHMIS element is to be found on a hazardous product received from the supplier?
  - a. SDS
  - b. Product label
  - c. Toll-free help line number
  - d. Occupational health and safety committee notes
4. When working with a hazardous product, what information should a worker know about the product?
  - a. Where to get further information
  - b. The hazards associated with the product
  - c. What to do in case of an emergency
  - d. How to protect yourself from the hazards
  - e. All of the above

### 3. Describe the labelling of controlled products

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Two types of labels are required by WHMIS: supplier labels and workplace labels. In general, suppliers are responsible for providing supplier labels and *employers are responsible for providing workplace labels* or other means of on-site identification. Employers must also ensure that all labels at their workplace are legible and that they are replaced if damaged.

#### Supplier labels

When a supplier produces or imports a product for distribution and sale in Canada, that supplier must prepare a supplier label. Seven items of information must be included within the label border:

1. Product identification: Often the brand name, chemical name, trade name, common name, or generic name of the hazardous product.
2. Initial supplier identifier: The name, address, and phone number of the supplier (manufacturer, distributor, or importer).
3. Hazard pictogram(s): One or more of the nine graphic images indicating the type of hazard(s) the product presents.
4. Signal words: “Danger” is used for high-risk hazards: “Warning” is used for less-severe hazards. If a signal word is assigned to a hazard class and category, only the one signal word corresponding to the class of the most severe hazard should be used on a label. Some hazard classes or categories do not have a signal word assigned to them.
5. Hazard statement(s): Standardized phrases assigned to each hazard class and category that alert workers to the specific hazard(s) of the product. These are short statements, but they describe the most significant hazards of the product.

Some examples of hazard statements are:

- Extremely flammable gas.
  - Contains gas under pressure; may explode if heated.
  - Fatal if inhaled.
  - Causes eye irritation.
  - May cause cancer.
6. Precautionary statement(s): Standardized phrases that describe measures to be taken to minimize or prevent adverse effects resulting from exposure to the product or improper handling or storage. These statements can include instructions about storage, handling, first aid, personal protective equipment, and emergency measures.

Examples of precautionary statements are:

- Keep container tightly closed.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - If exposed or concerned: Get medical advice/attention.
  - Fight fire remotely due to the risk of explosion.
  - Protect from sunlight.
7. Supplemental label information: May include supplemental information about precautionary actions, physical state, or routes of exposure. Also, if the product is a mixture that contains any ingredients with unknown toxicity in amounts higher than 1 percent, the label must include a statement indicating the percentage of unknown ingredient.

See the example of a supplier label in Figure 1.

## Product K1 /Produit




<p><b>Danger</b> <b>Fatal if swallowed.</b> <b>Causes skin</b></p> <p><b>Precautions:</b> Wear protective gloves. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product</p> <p>Store locked up. Dispose of contents/containers in accordance with local</p> <p>IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. avis Take off contaminated clothing and wash it before reuse. laver IF SWALLOWED: Immediately call a POISON CENTRE or doctor. immédiatement</p>	<p><b>Danger</b> <b>Mortel en cas d'ingestion.</b> <b>Provoque une irritation</b></p> <p><b>Conseils :</b> Porter des gants de protection. Se laver les mains soigneusement après manipulation. Ne pas manger, boire ou fumer en</p> <p>Garder sous clef. Éliminer le contenu/récipient conformément aux règlements locaux en vigueur.</p> <p>EN CAS DE CONTACT AVEC LA PEAU : Laver abondamment à l'eau. En cas d'irritation cutanée : Demander un médical/consulter un médecin. Enlever les vêtements contaminés et les EN CAS D'INGESTION : Appeler</p>
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Compagnie XYZ, 123 rue Machin St. Mytown, ON, NON 0N0 (123) 456-

Figure 1—Example of a supplier label

Additional requirements for supplier labels include:

- Only the above seven information items can be printed within the WHMIS label. Other information, such as directions for use, must be placed outside the WHMIS label.
- The written information must be shown in both English and French.
- The information must be correct and current. Labels need to be updated within 180 days of the supplier being aware of any significant new data. If an employer purchases a product within this 180-day time period, the supplier must inform the employer in writing, of the changes and the date they became available. Employers need to update the existing labels or the information on the containers as soon as the supplier provides the significant new information.
- Colours that conflict with transportation of dangerous goods (TDG) labelling cannot be used. For example, the colour orange cannot be used because it is used by TDG to identify explosives.
- The label must stand out from the container itself and other markings on the container. For example, the size of the label should be appropriate for the size of the container.

As long as a hazardous product remains in its supplier-provided container, the supplier label must remain attached to the container and must be legible.

## Other supplier labels

Some supplier labels may look different from the example shown in Figure 1 because less information is required for controlled products that are:

- in small containers (less than 100 mL)
- chemicals from laboratory chemical suppliers
- laboratory samples
- contained or transferred in a piping system, vessel, or tank

The Transportation of Dangerous Goods Act may require additional labels during transport. For multi-container shipments, a supplier label is not required on the outer container if a TDG label is present. Only the inner containers require supplier labels.

## Workplace labels

Workplace labels are required on containers of hazardous products for any of the following situations:

- A hazardous product is produced and used on-site
- On secondary containers after a product has been transferred from the original container
- On containers where the supplier label is missing or not readable.

Workplace labels provide three types of information:

1. product identifier
2. specific safe handling information and personal protective clothing and equipment required
3. reference to the SDS, if an SDS has been produced by the supplier

The format for workplace labels is fairly flexible. For example:

- The information can be written directly onto the container using a permanent marker.
- The languages used can be chosen to fit the specific workplace.
- The hazard pictograms are optional.

Figure 2 shows an example of a workplace label.



**Figure 2**—Workplace label

## Other means of identification

In some circumstances where workplace labels are impractical, employers may use other means of identification such as warning signs, symbols, placards, and coding systems (for example, using colours, numbers, or letters). These can be used as long as the identification system is communicated effectively and understood by workers.

These other means of identification can be used when the product is:

- used in a laboratory (for example, in transfer containers such as beakers and flasks)
- transferred by a worker into a container for use during the same shift if that worker maintains control of the new container and finishes use in that shift
- contained in a transfer or reaction system such as a pipe, reaction vessel, tank car, or conveyor belt
- identified as a hazardous waste produced in the workplace

## Partially exempt products

Products covered by other federal legislation are exempt from federal WHMIS requirements for supplier labels and SDSs. However, provincial WHMIS legislation still applies, and employers must:

- provide workers with hazard information about the product
- educate workers about the hazards of the product
- educate and train workers in the safe use, handling, storage, and disposal of the product

These partially exempt products are:

- some consumer products, such as chemicals and pressurized containers
- cosmetics, medical devices, drugs, and foods (Food and Drugs Act)
- explosives (Explosives Act)
- pesticides (Pest Control Products Act)
- radioactive substances (Nuclear Safety and Control Act)

## Completely exempt products

Products that are completely exempt (sometimes called *excluded*) from both federal and provincial WHMIS legislation are still covered by general provincial occupational health and safety regulations. Workers must still be trained and supervised in the safe handling of these products.

These completely exempt products are:

- wood and products made of wood
- manufactured articles (such as appliances and car batteries)
- tobacco and products made of tobacco
- goods handled, offered for transport, or transported under the Transportation of Dangerous Goods Act
- hazardous wastes (they must be identified at workplaces where they are produced)



Now complete the Self-Test.

## Self-Test 3

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1. What two types of labels are required by WHMIS when handling hazardous products?
  - a. Risk and first aid labels
  - b. SDS and WHMIS labels
  - c. Storage and disposal labels
  - d. Supplier and workplace labels
2. What element of a supplier label provides the chemical or trade name of a hazardous product?
  - a. SDS reference
  - b. The hazard pictogram
  - c. The supplier identification
  - d. The product identification
3. Which part of the supplier label alerts a worker to specific risks or hazards of a hazardous product?
  - a. Hazard statements
  - b. Hazard pictograms
  - c. Product identification
  - d. Precautionary statement
4. Which part of the supplier label advises the worker on immediate treatment for an injury or accident with a hazardous product?
  - a. Hazard statements
  - b. Hazard pictogram
  - c. Product identification
  - d. Precautionary statements
5. Which part of the supplier label advises a worker on personal protective equipment when handling a hazardous product?
  - a. Hazard statements
  - b. Hazard pictograms
  - c. Product identification
  - d. Precautionary statements

6. Which part of the supplier label advises the worker, using a series of symbols, of the type of hazards associated with a hazardous product?
  - a. Hazard statements
  - b. Hazard pictograms
  - c. Be careful symbols
  - d. Product identification
7. A supplier label should be large enough and striking enough to jump out at the reader.
  - a. True
  - b. False
8. On the job, if a supplier label is accidentally ripped off a barrel containing a hazardous product, provided all workers are told what's in the barrel, no further action is necessary.
  - a. True
  - b. False
9. To make her job easier, if a worker chooses to handle a hazardous product in an approved smaller container, what is that worker required to affix to that new container?
  - a. SDS
  - b. Supplier label
  - c. Hazard pictogram
  - d. Workplace label
10. Creating a workplace label can be as easy as recording the three types of information with a sharpie on the side of the container.
  - a. True
  - b. False
11. What information must a workplace label provide?
  - a. Producer's address and phone number
  - b. Chemical symbol of hazardous product
  - c. Transportation of dangerous goods reference number
  - d. Safe-handling information, including protective-wear guidelines
12. Workplace labels are intended to be informative and relevant to the job and workers.
  - a. True
  - b. False
13. Workplace labels must include pictograms and the supplier identifier.
  - a. True
  - b. False

14. Which of the following products are covered by provincial health and safety regulations but are completely exempt from WHMIS legislation?
- a. Car batteries
  - b. Wood products
  - c. Tobacco products
  - d. All of the above
  - e. None of the above
15. Hazardous waste created on a job site is a major safety concern requiring special training of workers but is exempt from WHMIS.
- a. True
  - b. False

## 4. Describe information to be disclosed on an SDS

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A safety data sheet (SDS) is a technical bulletin created by the producer of a hazardous product. An SDS provides specific hazard information, safe handling information, and emergency procedures for a single hazardous product. The SDS is a key part of the WHMIS program as it provides informational support to workers when working with or around a hazardous product.

Since the SDS contains detailed health and safety information specific to each hazardous product, it should be used as a key source of information for developing training programs and safe work procedures. Workers must be trained to understand the basic requirements of an SDS as well as the applicable information in it.

In addition to providing adequate education, employers are responsible for making SDSs available, accurate, and up-to-date for all workers at all times. Employers must ensure that up-to-date SDSs are received for all hazardous products purchased. No SDS on site can be more than three years old unless the employer has written confirmation from the supplier that the SDS hasn't changed.

If the employer produces a hazardous product for use at the workplace, the employer must develop an SDS for that product and make it available to workers. Copies of supplier and employer SDSs must be readily accessible to employees during each work shift.

### SDS sections

The following are the 16 section headings within an SDS and the types of information to be provided in each section.

**Note:** Sections 12 to 15 require the headings to be present, but under Canadian regulations, the supplier has the option to not provide information in these sections.

#### Section 1: Identification

This section identifies the product, the manufacturer, and the supplier, and it describes the intended product use. It also provides information about where to contact the manufacturer and supplier for information and/or in case of emergency.

#### Section 2: Hazard Identification

This section lists the classification of the hazardous product, hazard pictogram, signal word, hazard statement and precautionary statements for each category or subcategory applicable, and other hazards known to the supplier with respect to the product.

### **Section 3: Composition/Information on ingredients**

This section contains general information on physical and chemical properties such as the chemical name, common name and synonyms, CAS registry number, and any unique identifiers, mixture concentrations, or stabilizing additives.

### **Section 4: Firstaid measures**

This section lists specific instructions for the immediate treatment of a worker who has inhaled or swallowed the product or who has had skin or eye contact with the product.

### **Section 5: Firefighting measures**

This section lists the information for developing strategies and procedures to deal with fire hazards.

### **Section 6: Accidental release measures**

This section includes information on required protective equipment, as well as on how to safely clean up and contain spills.

### **Section 7: Handling and storage**

This section includes information on how to safely handle and store the product.

### **Section 8: Exposure controls/Personal protection**

This section includes information on how to control exposure as well as exposure limit values.

### **Section 9: Physical and chemical properties**

This section includes information on all of the physical and chemical properties of the hazardous product.

### **Section 10: Stability and reactivity data**

This section lists conditions and other substances that should be avoided to prevent dangerous reactions.

### **Section 11: Toxicological information**

This section identifies how the substance enters the body and the possible health effects from single or repeated exposure. It also identifies if the product has any known long-term health effects such as liver or kidney damage, sensitization, cancer, or reproductive effects.

### **Section 12: Ecological information**

This section identifies what short- or long-term effects the substance could have on the environment.

**Section 13: Disposal considerations**

This section includes information on the safe handling and disposal methods, including any containment packaging required.

**Section 14: Transport information**

This section includes all of the necessary international shipping information

**Section 15: Regulatory information**

This section includes any safety, health, and environmental regulations that have been made specific to this product.

**Section 16: Other information**

This section includes the date of the latest revision of the safety data sheet.

Appendix A shows a sample SDS for chromium acetate hydroxide.



Now complete the Learning Task Self-Test.

## Self-Test 4

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1. What information is provided in a material safety data sheet (SDS)?
  - a. Handling guidelines for a group of hazardous products
  - b. Employer responsibilities for handling a hazardous product
  - c. Detailed safety and health information about a single hazardous product
  - d. General safety and health guidelines about a group of hazardous products
2. Which section of an SDS identifies how the hazardous product enters the body, and the possible health effects from single or repeated exposures?
  - a. First aid measures
  - b. Hazard identification
  - c. Handling and storage
  - d. Toxicological information
3. Which section of an SDS identifies the hazardous product, the manufacturer, and the supplier, and describes the product's intended use?
  - a. Ingredients
  - b. Identification
  - c. Toxicological information
  - d. Stability and reactivity data
4. Which section of the SDS lists the specific chemical name and mixture concentrations for the components of the hazardous product?
  - a. Ingredients
  - b. Identification
  - c. Toxicological information
  - d. Stability and reactivity data
5. Which section of the SDS describes the flammability and conditions under which a hazardous product might explode?
  - a. Hazard identification
  - b. Composition/information
  - c. Toxicological information
  - d. Stability and reactivity data

6. Which section of an SDS would describe chemical properties such as specific gravity or the boiling point of a hazardous product?
  - a. Hazard identification
  - b. Firefighting measures
  - c. Accidental release measures
  - d. Physical and chemical properties
7. Which section of an SDS would describe either how to clean up a spill or the personal protective clothing and equipment that are required when handling the hazardous product?
  - a. Hazard identification
  - b. Firefighting measures
  - c. Accidental release measures
  - d. Physical and chemical properties
8. Which section of an SDS would you refer to if a co-worker got splashed by a hazardous product?
  - a. First aid measures
  - b. Hazard identification
  - c. Handling and storage
  - d. Toxicological information
9. Which section of an SDS would you reference to check if the SDS is out of date?
  - a. Identification
  - b. First aid measures
  - c. Other information
  - d. Toxicological information
10. Which section of an SDS would you refer for the hazard classification of a hazardous product?
  - a. First aid measures
  - b. Hazard identification
  - c. Handling and storage
  - d. Toxicological information

## 5. Identify pictograms found on WHMIS labels

Pictograms are graphic images that immediately show you what type of hazard a hazardous product presents.

Manufacturers and suppliers classify the products into one or more of the hazard classes and assign one or more of the appropriate pictograms. Pictograms will be on the product supplier labels of the hazardous products as well as on the SDSs.

Workers must recognize the ten hazard pictograms and know what they mean. Most pictograms have a distinctive red border in the shape of a square set on one of its corners. Inside this border is a symbol that represents the potential hazard (e.g., fire, health hazard, corrosive, etc.). With a quick glance, a worker can see, for example, that the product is flammable or if it might be a health hazard.

### Hazard classes, categories, and pictograms

Figure 1 shows each hazard pictogram, its name, hazard description, and the associated hazard classes and categories.

Name/ Description	Pictogram	Classes and categories
<b>Flame</b> (for fire hazards)		<ul style="list-style-type: none"> <li>• Flammable gases (Category 1)</li> <li>• Flammable aerosols (Category 1 and 2)</li> <li>• Flammable liquids (Category 1, 2, and 3)</li> <li>• Flammable solids (Category 1 and 2)</li> <li>• Pyrophoric liquids (Category 1)</li> <li>• Pyrophoric solids (Category 1)</li> <li>• Pyrophoric gases (Category 1)</li> <li>• Self-heating substances and mixtures (Category 1 and 2)</li> <li>• Substances and mixtures which, in contact with water, emit flammable gases (Category 1, 2, and 3)</li> <li>• Self-reactive substances and mixtures (Types B*, C, D, E, and F)</li> <li>• Organic peroxides (Types B*, C, D, E, and F)</li> </ul>
<b>Flame over circle</b> (for oxidizing hazards)		<ul style="list-style-type: none"> <li>• Oxidizing gases (Category 1)</li> <li>• Oxidizing liquids (Category 1, 2, and 3)</li> <li>• Oxidizing solids (Category 1, 2, and 3)</li> </ul>

Name/ Description	Pictogram	Classes and categories
<b>Exploding bomb</b> (for explosion or reactivity hazards)		<ul style="list-style-type: none"> <li>• Self-reactive substances and mixtures (Types A and B*)</li> <li>• Organic peroxides (Types A and B*)</li> </ul>
<b>Corrosion</b> (for corrosive damage to metals, as well as skin, eyes)		<ul style="list-style-type: none"> <li>• Corrosive to metals (Category 1)</li> <li>• Skin corrosion/irritation - Skin corrosion (Category 1, 1A, 1B, and 1C)</li> <li>• Serious eye damage/eye irritation - Serious eye damage (Category 1)</li> </ul>
<b>Gas cylinder</b> (for gases under pressure)		<ul style="list-style-type: none"> <li>• Gases under pressure (compressed gas, liquefied gas, refrigerated liquefied gas, and Dissolved gas)</li> </ul>
<b>Skull and crossbones</b> (can cause death or toxicity with short exposure to small amounts)		<ul style="list-style-type: none"> <li>• Acute toxicity               <ul style="list-style-type: none"> <li>- Oral (Category 1, 2 and 3)</li> <li>- Dermal (Category 1, 2, and 3)</li> <li>- Inhalation (Category 1, 2, and 3)</li> </ul> </li> </ul>
<b>Exclamation mark</b> (may cause less serious health effects or damage the ozone layer)		<ul style="list-style-type: none"> <li>• Acute toxicity - Oral, dermal, inhalation (Category 4)</li> <li>• Skin corrosion/irritation - Skin irritation (Category 2)</li> <li>• Serious eye damage/eye irritation - Eye irritation (Category 2 and 2A)</li> <li>• Respiratory or skin sensitization - Skin sensitizer (Category 1, 1A and 1B)</li> <li>• Specific target organ toxicity - Single exposure (Category 3)</li> </ul>

Name/ Description	Pictogram	Classes and categories
<b>Health hazard</b> (may cause or suspected of causing serious health effects)		<ul style="list-style-type: none"> <li>• Respiratory or skin sensitization - Respiratory sensitizer (Category 1, 1A, and 1B)</li> <li>• Germ cell mutagenicity (Category 1, 1A, 1B, and 2)</li> <li>• Carcinogenicity (Category 1, 1A, 1B, and 2)</li> <li>• Reproductive toxicity (Category 1, 1A, 1B, and 2)</li> <li>• Specific target organ toxicity - Single exposure (Category 1 and 2)</li> <li>• Specific target organ toxicity - Repeated exposure (Category 1 and 2)</li> <li>• Aspiration hazard (Category 1)</li> </ul>
<b>Biohazardous infectious materials</b> (for organisms or toxins that can cause diseases in people or animals)		<ul style="list-style-type: none"> <li>• Biohazardous infectious materials (Category 1)</li> </ul>

Figure 1—Hazard symbols

\* Both the flame and explosive pictograms are used for self-reactive substances and mixtures (Type B) and organic peroxides (Type B).

An environmental hazards group exists in the GHS for products that may cause damage to the aquatic environment. This group (and its classes) were not adopted in WHMIS 2015. However, you may see the environmental pictogram (Figure 2) listed on labels and SDSs.



Figure 2—Environmental hazard pictogram

## Hazard classes and categories without pictograms

There are hazardous products that meet the criteria for a hazard class or category but whose classes and categories do not require a pictogram. The product label and Section 2 (Hazards Identification) of the SDS still require the signal word, hazard statement(s), and other required label elements.

WHMIS 2015 classes and categories that do not require a pictogram are:

- Flammable gases - Category 2
- Flammable liquids - Category 4
- Self-reactive substances and mixtures - Type G
- Organic peroxides - Type G
- Combustible dusts - Category 1
- Simple asphyxiants - Category 1
- Serious eye damage/eye irritation - Eye irritation - Category 2B
- Reproductive toxicity - Effects on or via lactation



Now complete the Self-Test.

## Self-Test 5

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1. What is the purpose of the hazard pictograms found on WHMIS labels?
  - b. To visually highlight that a hazard exists
  - c. To classify a hazard in one of 31 hazard classes
  - d. To provide personal protective equipment at a glance
  - e. To provide physical and chemical properties at a glance
2. What section of the SDS must include the pictogram?
  - a. First aid measures
  - b. Hazard identification
  - c. Handling and storage
  - d. Toxicological information
3. Which two pictograms are used for the hazard class of organic peroxides (Type B)?
  - a. Flame and corrosion
  - b. Flame and exploding bomb
  - c. Flame and flame over circle
  - d. Exploding bomb and corrosion
4. All hazard classes require a pictogram.
  - a. True
  - b. False

5. Match the correct hazard description to the proper hazard pictogram.

Description		Pictogram
I. _____	Gases under pressure	a. 
II. _____	Fire hazards	b. 
III. _____	Oxidizing hazards	c. 
IV. _____	Can cause death or immediate and serious toxic effects	d. 
V. _____	May cause less serious health effects or damage the ozone layer	e. 
VI. _____	Organisms or toxins that can cause diseases in people or animals	f. 
VII. _____	Can cause corrosive damage to metals, as well as skin, eyes	g. 
VIII. _____	Explosion or reactivity hazards	h. 
IX. _____	Serious health effects	i. 

## 6. Explain WHMIS education and training

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The third component of WHMIS is worker education and training. The information provided by labels and SDSs will be of little use unless workers can understand it and apply it through training.

### Employer responsibilities

Employers must establish an education program for their workers to ensure that workers understand WHMIS and the hazards of the hazardous products they work with or near. Education programs about WHMIS must be followed up with job-specific training in safe work procedures for handling, storing, and disposing of these hazardous products. Worker representatives or the health and safety committee must be consulted in developing, implementing, and reviewing education and training programs.

### Difference between education and training

WHMIS education explains how WHMIS works, what an SDS is, what information is on a WHMIS label, and other information about WHMIS. WHMIS training refers to hands-on job-specific training. Training shows individuals how to work safely with the hazardous products in a particular workplace.

### Education

Worker education must include instruction in the content, purpose, and significance of workplace and supplier labels and SDSs. Workers can be educated through classroom instruction or by using videos or computer programs. Education courses can be offered on-site by employers, offered through contracted specialized companies, or through continuing studies at a local training facility. WHMIS education can also be completed and tested online.

### Certification

Some industries, such as construction, offer WHMIS “cards” or “certificates” to participants who complete their WHMIS education program. Such cards and certificates are useful for workers who move regularly from site to site, enabling them to prove to new employers that they have attended WHMIS education sessions. However, job-specific training at each work site is still required for all workers who work with or near hazardous products.

## Job-specific training

Employees must be trained in the procedures specific to their workplace. These include:

- which hazardous products they could be exposed to in their workplace
- how to store, handle, use, or dispose of hazardous products in their workplace
- emergency procedures in the event of an accident or spill

## Implementing WHMIS in the workplace

To implement the WHMIS program and develop written safe work procedures, employers make use of supplier labels and SDSs, as well as their own knowledge of the hazardous properties of products and their use in the workplace. Here are the main hazards of the products in the two hazard groups.

### Hazardous properties for the physical hazard classes

This list shows the main concerns for the 18 hazard classes found in the physical hazard grouping.

Hazard class	Hazardous properties
Flammable gases Flammable aerosols Flammable liquids Flammable solids	These classes of products that have the ability to ignite (catch fire) easily. The main hazards are fire or explosion.
Oxidizing gases Oxidizing liquids Oxidizing solids	These classes of products are oxidizers, which may cause or intensify a fire or cause an explosion.
Gases under pressure	This class includes compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases. Compressed gases, liquefied gases, and dissolved gases are hazardous because of the high pressure inside the cylinder or container. The cylinder or container may explode if heated. Refrigerated liquefied gases are very cold and can cause severe cold (cryogenic) burns or injury.
Self-reactive substances and mixtures	These products may react on their own to cause a fire or explosion, or may cause a fire or explosion if heated.
Pyrophoric liquids Pyrophoric solids Pyrophoric gases	These products can catch fire very quickly (spontaneously) if exposed to air.
Self-heating substances and mixtures	These products may catch fire if exposed to air. These products differ from pyrophoric liquids or solids in that they will ignite only after a longer period of time or when in large amounts.
Organic peroxides	These products may cause a fire or explosion if heated.

Hazard class	Hazardous properties
Corrosive to metals	These products may be corrosive (chemically damage or destroy) to metals.
Combustible dust	This class is used to warn of products that are finely divided solid particles. If dispersed in air, the particles may catch fire or explode if ignited.
Simple asphyxiants	These products are gases that may displace oxygen in air and cause rapid suffocation.
Physical hazards not otherwise classified	This class is meant to cover any physical hazards that are not covered in any other physical hazard class. These hazards must have the characteristic of occurring by chemical reaction and result in the serious injury or death of a person at the time the reaction occurs. If a product is classified in this class, the hazard statement on the label and SDS will describe the nature of the hazard.

### Hazardous properties for the health hazard classes

This list shows the main concerns for the 12 hazard classes found in the health hazard grouping.

Hazard class	Hazardous properties
Acute toxicity	<p>These products are fatal, toxic, or harmful if inhaled, following skin contact, or if swallowed.</p> <p>Acute toxicity refers to effects occurring following skin contact or ingestion exposure to a single dose, or multiple doses given within 24 hours, or an inhalation exposure of 4 hours.</p> <p>Acute toxicity could result from exposure to the product itself, or to a product that, upon contact with water, releases a gaseous substance that is able to cause acute toxicity.</p>
Skin corrosion/irritation	Products in this class cause severe skin burns (i.e., corrosion) and/or skin irritation.
Serious eye damage/eye irritation	Products in this class cause serious eye damage (i.e., corrosion) and/or eye irritation.
Respiratory or skin sensitization	A respiratory sensitizer is a product that may cause allergy or asthma symptoms or breathing difficulties if inhaled. A skin sensitizer is a product that may cause an allergic skin reaction.
Germ cell mutagenicity	This class includes products that may cause or are suspected of causing genetic defects (permanent changes (mutations) to body cells that can be passed on to future generations.
Carcinogenicity	This class includes products that may cause or are suspected of causing cancer.

Hazard class	Hazardous properties
Reproductive toxicity	This class includes products that may damage or are suspected of damaging fertility or the unborn child (baby). Note: There is an additional category that includes products that may cause harm to breast-fed children.
Specific target organ toxicity – single exposure	This class covers products that cause or may cause damage to organs (e.g., liver, kidneys, or blood) following a single exposure. This class also includes a category for products that cause respiratory irritation, drowsiness, or dizziness.
Specific target organ toxicity – repeated exposure	This class covers products that cause or may cause damage to organs (e.g., liver, kidneys, or blood) following prolonged or repeated exposure.
Aspiration hazard	This class is for products that may be fatal if they are swallowed and enter the airways.
Biohazardous infectious materials	These materials are microorganisms, nucleic acids, or proteins that cause or are probable cause of infection, with or without toxicity, in humans or animals.
Health hazards not otherwise classified	This class covers products that are not included in any other health hazard class. These hazards have the characteristic of occurring following acute or repeated exposure and have an adverse effect on the health of a person exposed to it — including an injury or resulting in the death of that person. If a product is classified in this class, the hazard statement will describe the nature of the hazard.

### Written safe work procedures

Employers are required to write safe work procedures as safety guidelines for workers who will handle hazardous products. Safe work procedures address the specific hazards of the hazardous product and how it is safely used in the workplace. The written procedure must contain enough detail to provide clear direction to authorized workers.

The following steps outline the written safe work procedure to be used by authorized workers for clean-up of small spills of acetone (about one litre) for a particular work site.

### Safe work procedure for clean-up of acetone spills

1. Extinguish and control all ignition sources, including electrical services, open flames, and electrostatic discharge.
2. Evacuate workers to the designated safe location.
3. Report the spill to your supervisor.
4. Get the waste containers and spill cart.
5. Put on the respirator, butyl rubber gloves, and safety goggles.

6. Clean up the acetone using chemical absorbent pillows from the spill cart according to the manufacturer's instructions.
7. Do not flush or rinse the spilled acetone into the sewer system.
8. Place used absorbent pillows (containing acetone) in designated waste containers.
9. Dispose of used chemical absorbent pillows according to local waste disposal procedures.

### General precautions when using common hazardous materials

Employers should take note of the following general precautions:

- Some common materials are considered safe to use under normal operation but may change to hazardous materials under certain conditions. These include fresh concrete, pressure-treated wood, contact cement, paints, and cleaners.
- Some substances are flammable as well as toxic. Use products such as contact cement and certain paints that are highly flammable in well-ventilated work areas that contain no open flame.
- Many substances are harmless by themselves, but when combined, they release toxic fumes. Two common household cleaning agents, ammonia and bleach, when mixed together will produce toxic chlorine gas. It is best not to mix any chemicals found on the job site unless you are absolutely certain that the combined mixture will not be harmful.
- Sometimes chemical changes are triggered by heat or radiation. The ultraviolet radiation from a welding operation can transform the vapours of many common solvents into the deadly gas phosgene. Many plastics and vinyl resins are harmless in their normal state but give off a highly toxic smoke when burned.
- Many paints and cleaners come in aerosol cans that use pressure to release their contents. These cans should not be kept near heat or exposed to flames. Empty cans should be disposed of properly, never burned. The containers are explosive and the residual contents are often highly flammable.
- Charges for powder-actuated tools are often used in shops and on construction sites, and are potentially dangerous. These products are supplied in plastic strips or plastic boxes. Live charges that are dropped on the floor or strips discarded with live charges in them can be dangerous. If sweepings and garbage are burned on the site, the charges will explode when heated, which could injure anyone near the fire.



Here are some links to additional WorkSafeBC documents:

**WHMIS at Work**

<https://www.worksafebc.com/en/resources/health-safety/whmis/whmis-work-2015>

**WHMIS video series**

[https://www.worksafebc.com/en/resources/health-safety/videos/whmis/overview- 1-of-5](https://www.worksafebc.com/en/resources/health-safety/videos/whmis/overview-1-of-5)



Now complete the Self-Test.

## Self-Test 6

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1. Who is responsible, under WHMIS legislation, for the education and training of workers who will handle hazardous products?
  - a. The worker
  - b. The supplier
  - c. WorkSafeBC
  - d. The employer
2. What key resources are used to create on-site WHMIS education and training?
  - a. WorkSafeBC guidelines and policies
  - b. Supplier labels and SDSs found on site
  - c. WHMIS education the workers missed at their last job
  - d. Occupation health and safety regulations and guidelines relating to all work sites
3. Which of the following best describes the need for job specific WHMIS training?
  - a. Workers need a break and a WHMIS training day is just that.
  - b. WHMIS is to be taught again and again or the workers never learn.
  - c. Companies aren't required by law to provide training, so it is optional.
  - d. Specific awareness of hazardous products workers may handle on site.
4. What are the common main hazards for flammable gases, aerosols, liquids, and solids?
  - a. Oxidizers that may cause or intensify a fire or cause a fire or explosion.
  - b. The ability to ignite (catch fire) easily, and the main hazards are fire or explosion
  - c. May react on their own to cause a fire or explosion, or may cause a fire or explosion if heated
  - d. These products can catch fire very quickly (spontaneously) if exposed to air.
5. Under certain conditions such as combustion, the hazard potential of many commonly found materials can change, posing a new threat to the health and safety of workers.
  - a. True
  - b. False
6. Safe work procedures written by the employer should be very general in scope and avoid overly detailed information.
  - a. True
  - b. False

## Answer Key

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### Self-Test 1

1. d. Federal and provincial
2. c. Workplace Hazardous Material Information System
3. d. The Right to Know requirement
4. b. Hazardous Products Act
5. a. Hazardous product
6. c. Supplier
7. d. Employer
8. b. Worker
9. c. Close to the work area and made available at all times
10. b. Safety data sheet
11. c. Health and physical hazards

### Self-Test 2

1. c. Product labels and technical bulletins
2. a. Provide education and training
3. b. Product label
4. e. All of the above

### Self-Test 3

1. d. Supplier and workplace labels
2. d. The product identification
3. a. Hazard statements
4. d. Precautionary statements
5. d. Precautionary statements
6. b. Hazard pictograms
7. a. True
8. b. False
9. d. Workplace label
10. a. True
11. d. Safe-handling information, including protective-wear guidelines
12. a. True

- 13. b. False
- 14. d. All of the above
- 15. a. True

#### Self-Test 4

- 1. c. Detailed safety and health information about a single hazardous product
- 2. d. Toxicological information
- 3. b. Identification
- 4. a. Ingredients
- 5. d. Stability and reactivity data
- 6. d. Physical and chemical properties
- 7. c. Accidental release measures
- 8. a. First aid measures
- 9. c. Other information
- 10. b. Hazard identification

#### Self-Test 5

- 1. a. To visually highlight that a hazard exists
- 2. b. Hazard identification
- 3. b. Flame and exploding bomb
- 4. b. False

5.

			Description	Pictogram
I.	e	Gases under pressure		e. 
II.	a	Fire hazards		f. 
III.	g	Oxidizing hazards		g. 
IV.	d	Can cause death or immediate and serious toxic effects		h. 
V.	i	May cause less serious health effects or damage the ozone layer		i. 
VI.	b	Organisms or toxins that can cause diseases in people or animals		j. 
VII.	f	Can cause corrosive damage to metals, as well as skin, eyes		k. 
VIII.	c	Explosion or reactivity hazards		l. 
IX.	h	Serious health effects		m. 

**Self-Test 6**

1. d. The employer
2. b. Supplier labels and SDSs found on site
3. d. Specific awareness of hazardous products workers may handle on site.
4. a. The ability to ignite (catch fire) easily, and the main hazards are fire or explosion
5. b. True
6. b. False

## Appendix A—Sample Safety Data Sheet for Chromium Acetate Hydroxide

<b>SIGMA-ALDRICH</b>		<small>sigma-aldrich.com</small>
		<b>Safety Data Sheet</b>
		Version 4.1 Revision Date 10/23/2010 Print Date 02/08/2011
<b>1. PRODUCT AND COMPANY IDENTIFICATION</b>		
Product name	: Chromium(III) acetate hydroxide	
Product Number	: 318108	
Brand	: Aldrich	
Product Use	: For laboratory research purposes.	
Supplier	: Sigma-Aldrich Canada, Ltd 2149 Winston Park Drive OAKVILLE ON L6H 6J8 CANADA	Manufacturer : Sigma-Aldrich Corporation 3050 Spruce St. St. Louis, Missouri 63103 USA
Telephone	: +19058299500	
Fax	: +19058299292	
Emergency Phone # (For both supplier and manufacturer)	: 1-800-424-9300	
Preparation Information	: Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956	
<b>2. HAZARDS IDENTIFICATION</b>		
<b>Emergency Overview</b>		
<b>WHMIS Classification</b>	Not WHMIS controlled.	Not WHMIS controlled.
<b>GHS Classification</b>		
Acute toxicity, Inhalation (Category 4)		
Acute toxicity, Dermal (Category 4)		
Acute toxicity, Oral (Category 4)		
Skin irritation (Category 2)		
Eye irritation (Category 2A)		
Specific target organ toxicity - single exposure (Category 3)		
<b>GHS Label elements, including precautionary statements</b>		
Pictogram		
Signal word	Warning	
Hazard statement(s)		
H302 + H312	Harmful if swallowed or in contact with skin.	
H315	Causes skin irritation.	
H319	Causes serious eye irritation.	
H332	Harmful if inhaled.	
H335	May cause respiratory irritation.	
Precautionary statement(s)		
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.	
P264	Wash skin thoroughly after handling.	
P270	Do not eat, drink or smoke when using this product.	
P271	Use only outdoors or in a well-ventilated area.	
P280	Wear protective gloves/ eye protection/ face protection.	
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.	
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P302 + P352 IF ON SKIN: Wash with plenty of soap and water .  
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing .  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes . Remove contact lenses, if present and easy to do . Continue rinsing .  
 P312 Call a POISON CENTER or doctor/ physician if you feel unwell .  
 P322 Specific measures (see supplemental first aid instructions on this label) .  
 P330 Rinse mouth .  
 P332 + P313 If skin irritation occurs: Get medical advice/ attention .  
 P337 + P313 If eye irritation persists: Get medical advice/ attention .  
 P362 Take off contaminated clothing and wash before reuse .  
 P403 + P233 Store in a well-ventilated place . Keep container tightly closed .  
 P405 Store locked up .  
 P501 Dispose of contents/ container to an approved waste disposal plant .

**HMIS Classification**

**Health hazard:** 0  
**Flammability:** 0  
**Physical hazards:** 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled . May cause respiratory tract irritation .  
**Skin** May be harmful if absorbed through skin . May cause skin irritation .  
**Eyes** May cause eye irritation .  
**Ingestion** May be harmful if swallowed .

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula :  $C_{14}H_{23}Cr_3O_{16}$   
 Molecular Weight : 603.31 g/mol

CAS-No .	EC-No .	Index-No .	Concentration
<b>Chromium(III) acetate hydroxide</b>			
39430-51-8	254-447-3	-	-

**4. FIRST AID MEASURES****General advice**

Consult a physician . Show this safety data sheet to the doctor in attendance .

**If inhaled**

If breathed in, move person into fresh air . If not breathing, give artificial respiration . Consult a physician .

**In case of skin contact**

Wash off with soap and plenty of water . Consult a physician .

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician .

**If swallowed**

Never give anything by mouth to an unconscious person . Rinse mouth with water . Consult a physician .

**5. FIRE-FIGHTING MEASURES****Conditions of flammability**

Not flammable or combustible .

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide .

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary .

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions . - Carbon oxides, Chromium oxides

**Explosion data - sensitivity to mechanical impact**

no data available

**Explosion data - sensitivity to static discharge**

no data available

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**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Use personal protective equipment . Avoid dust formation . Avoid breathing vapors, mist or gas . Ensure adequate ventilation . Evacuate personnel to safe areas . Avoid breathing dust .

**Environmental precautions**

Do not let product enter drains .

**Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust . Sweep up and shovel . Keep in suitable, closed containers for disposal .

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**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes . Avoid formation of dust and aerosols .  
Provide appropriate exhaust ventilation at places where dust is formed . Normal measures for preventive fire protection .

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place .

Keep in a dry place .

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Contains no substances with occupational exposure limit values .

**Personal protective equipment****Respiratory protection**

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator .For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges . Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU) .

**Hand protection**

Handle with gloves . Gloves must be inspected prior to use . Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product . Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices . Wash and dry hands .

**Eye protection**

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU) .

**Skin and body protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace .

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice . Wash hands before breaks and at the end of workday .

**Specific engineering controls**

Use mechanical exhaust or laboratory fumehood to avoid exposure .

**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form	powder
Colour	green

**Safety data**

pH	no data available
Melting/freezing point	no data available
Boiling point	no data available
Flash point	no data available
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

**10. STABILITY AND REACTIVITY****Chemical stability**

Stable under recommended storage conditions .

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

no data available

**Materials to avoid**

Strong oxidizing agents

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions . - Carbon oxides, Chromium oxides

**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

no data available

**Inhalation LC50****Dermal LD50****Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

Inhalation - May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: Not available

**12. ECOLOGICAL INFORMATION****Toxicity**

no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

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no data available

**Other adverse effects**

no data available

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**13. DISPOSAL CONSIDERATIONS**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company .

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION**

**DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

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**15. REGULATORY INFORMATION**

**DSL Status**

This product contains the following components listed on the Canadian NDSL list . All other components are on the Canadian DSL list .

Chromium(III) acetate hydroxide	CAS-No . 39430-51-8
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**WHMIS Classification**

Not WHMIS controlled .

Not WHMIS controlled .

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations .

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**16. OTHER INFORMATION**

**Further information**

Copyright 2010 Sigma-Aldrich Co . License granted to make unlimited paper copies for internal use only .

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide . The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions . It does not represent any guarantee of the properties of the product . Sigma-Aldrich Co ., shall not be held liable for any damage resulting from handling or from contact with the above product . See reverse side of invoice or packing slip for additional terms and conditions of sale .

# Workstation Set-up

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## Description

This activity introduces students to basic food safety practices, including waste handling, kitchen procedures, and personal grooming standards. Students will learn to identify large and small kitchen equipment and will acquire knife skills used in the professional kitchen.

## Lesson Objectives

Students will be able to:

- apply proper grooming standards when preparing food
- apply safe work practices
- demonstrate organizational skills
- choose the correct equipment for the task at hand, and
- utilize correct practices related to reducing, reusing, and recycling.

## Assumptions

The teacher will be familiar with:

- the correct food and kitchen safety procedures using appropriate resources
- the correct names and locations of both large and small kitchen equipment, and
- the correct names, procedures, and skills for knife selection and use.

Teachers will have the flexibility to choose a recipe based on resources, time, and physical space.

Students will have received orientation on the subject of kitchen and food safety.

## Terminology

**bacteria:** Bacteria are the microorganisms most commonly responsible for foodborne illness.

**contamination:** Contamination refers to the spreading of pathogens.

**cross-contamination:** Cross-contamination is an indirect method of spreading pathogens.

**direct contamination:** Direct contamination refers to the direct method of spreading pathogens.

**foodborne illness:** Any illness caused by the consumption of food is considered a foodborne illness.

**microbe:** A microbe is a microscopic organism, also known as a microorganism.

**pathogen:** A pathogen is a microbe that causes foodborne illness in humans.



**safety data sheets (SDS):** Safety data sheets are technical sheets that provide safe handling information and emergency procedures for hazardous products.

**sanitation:** Sanitation refers to the killing of microbes through the use of chemicals and/or temperature.

**sustainability:** Sustainability involves the ability to maintain an activity or standard at a certain viable level.

## Estimated Time

2 70-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- cutting boards
- chef knives
- equipment as listed on scavenger hunt worksheet

## Materials

- aprons
- carrots
- equipment identification worksheet
- knife safety worksheet (identifies basic cuts, knife composition, proper handling)
- onions
- parsley

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 96– 218.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

Labensky, Sarah, Alan Hause, and Priscilla Martel. *On Cooking*. 7th Canadian ed. Pearson Canada, 2017

# Demonstrating Skills And Knowledge

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## Procedure

This activity will be an orientation to the kitchen. As the students proceed through the Cook module, the steps in the orientation will become a daily practice. The Workstation Set-up Activity Plan may be used as a summative assessment tool throughout the module.

A workstation checklist may be utilized until the student shows competency and efficiency in setting up the workspace or station. The teacher may choose to generate this checklist with students or provide students with a previously created list.

### Day 1: Food and Kitchen Safety (Teacher-led activity)

The teacher will outline basic food safety practices as well as basic kitchen safety practices that follow food safety standards. Key topics will include:

- common sanitation hazards
- proper sanitation procedures in the kitchen
- safety in the kitchen
- proper workstation set-up for safe and efficient work, and
- sustainability in the kitchen.

Procedures will vary from kitchen to kitchen, but the focus is on maintaining the core competencies (temperatures, sanitation practices, etc.).

### Day 2: Equipment Identification (Group Activity)

Students will complete a worksheet that identifies a number of key pieces of equipment used in everyday cooking, including small wares, hand tools, and large equipment (cutting boards, colanders, saucepots, peelers, mixers, stoves, etc.).

After the identification is complete, students will be expected to complete the worksheet by going on a scavenger hunt of their assigned station and recording where all identified equipment is located. Go over the worksheet together afterwards to ensure that everyone has the correct information.

## Evaluation Guidelines

**Safety:** This is a continuing objective that can be evaluated by observing whether students demonstrate the professional and personal traits of a chef in class.

**Tools and equipment:** This is a continuing objective that will be assessed using formative methods; students will show evidence of learning by demonstrating the professional traits of a chef.

## Extension Activities

Students will be continuously evaluated on the skills in this Activity Plan throughout the course.

# Kitchen Equipment Scavenger Hunt

List and name the location for each of the following .

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## Answer Key

Photo of Equipment	Name and Location of Equipment
	Range
	Box grater
	Measuring spoons
	Bus pan

Photo of Equipment	Name and Location of Equipment
	Zester
	Roasting pan
	Whip
	Dough hook

Photo of Equipment	Name and Location of Equipment
	<p>Stock pot</p>
	<p>Sauce pan</p>
	<p>China cup</p>
	<p>Chef's knives</p>

Photo of Equipment	Name and Location of Equipment
	Tongs
	Slotted spoon
	Perforated spoon
	Solid spoon

Photo of Equipment	Name and Location of Equipment
	<p>Skimmer</p>
	<p>Spider</p>
	<p>Ladle</p>
	<p>Grill spatula</p>

Photo of Equipment	Name and Location of Equipment
	Whisk
	Portion scoop
	Dry measuring cups
	Meat fork

Photo of Equipment	Name and Location of Equipment
	<p>Bench scraper</p>
	<p>Peeler</p>
	<p>Rubber spatula</p>
	<p>Rolling pin</p>

Photo of Equipment	Name and Location of Equipment
	Bowl
	Egg slicer
	Rasp
	Colander

Photo of Equipment	Name and Location of Equipment
	<p>Melon baller</p>
	<p>Scale</p>
	<p>Baking tray</p>
	<p>Liquid measuring cup</p>

# Palate Development

## Description

Students will learn to identify the six flavour profiles that make up the palate and their basic combinations. After tasting each of the flavours, students will combine two or more flavours on popcorn to create combinations and to taste the balance of the flavours.

## Lesson Objectives

Students will:

- understand the importance of how flavours react on one's palate in order to create a specific taste
- learn how flavours and seasonings combine and create memorable dishes—either bad or good—by using the taste buds
- identify common combinations of flavours found in the everyday food that they eat (e.g., coffee with sugar, sweet and sour sauce, ketchup, salt and vinegar potato chips, salted caramel)
- experiment with the taste of a variety of ingredients used to build their own flavour profiles, and
- critique and evaluate the flavours and flavour combinations that are created.

## Assumptions

- The teacher will be familiar with flavour profiles and the correct palate-related ingredients, and will use appropriate resources.
- The teacher will prepare a number of ingredients and create six tasting stations based on flavour profile classifications.
- The teacher will prepare enough popcorn for the entire class.
- Students have received orientation on the subject of kitchen and food safety.
- Workstation Set-up and Knife Skills Activity Plans have been successfully previously completed.

## Safety Considerations

- Students will practise proper use of personal protective equipment (PPE) at all times.
- Students will have received orientation on the subject of kitchen and food safety.
- Students should have some awareness of the quantities of ingredients such as salt, sour, and hot/spicy that may cause discomfort in the palate.



## Terminology

**categories of taste:** There are six basic taste profiles or categories: acidic, salty, sweet, bitter, umami (savoury) and hot/spicy.

*mise en place:* *Mise en place* (Fr.) refers to all of the preparation needed to cook a dish.

**palate:** Palate refers to a person's perception or appreciation of flavours.

**texture:** The texture of a food is the way that food feels in the mouth.

*umami:* *Umami* is a Japanese term denoting a category of taste in food referring to earthy or meaty flavours.

## Estimated Time

1 70-minute class

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- *mise en place* bowls for each station to hold flavour ingredients
- labels for ingredients at each tasting station
- tasting spoons or toothpicks
- bowls for mixing popcorn
- pot for making popcorn or air-popper
- individual bags for student popcorn

## Materials

Choose two or three ingredients for each of the following tasting stations:

### Salt

- table salt
- other salt such as sea salt or kosher salt
- soya sauce

### Sour

- lemon juice—fresh, not bottled
- lime juice—fresh, not bottled
- 2 types of vinegars
- powdered acid such as tartaric (cream of tartar), citric, ascorbic (vitamin C)

**Sweet**

- granulated sugar
- honey
- syrup—maple, corn, pancake
- molasses

**Bitter**

- radicchio or other chicory/endive
- strong coffee
- raw vegetable such as artichoke or bitter melon
- onion skin broth—boil onion skins until dark like tea. Very bitter.

**Umami (Savoury)**

- mushroom broth—simmer dry mushrooms such as shiitake or Chinese mushrooms
- brewers yeast, engevita yeast, or nutritional yeast
- parmesan cheese
- marmite or vegemite
- miso
- seaweed

**Hot/Spicy**

- black pepper—front of the mouth
- white pepper, wasabi, horseradish—middle of the mouth
- red pepper—cayenne, chili flakes, hot sauce

Popcorn seeds for popping

Oil

Butter

**Resources**

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 837–845.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

Labensky, Sarah, Alan Hause, and Priscilla Martel. *On Cooking*. 7th Canadian ed. Pearson Canada, 2017.

# Demonstrating Skills And Knowledge

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## Procedure

1. Prior to class, the instructor will arrange and label flavour ingredients in six stations around the room by types of flavours (6).
2. Prior to class, the instructor will prepare individual bags of popcorn for each student.
3. The teacher may want to start the class off with a quick discussion about the difference between eating and tasting. Eating is simply the act of ingesting foods and takes no thought or creativity. Tasting, however, requires concentration, visualization, creativity, and experience. Like painters who develop their sight and musicians who develop their hearing, chefs must develop their sense of taste and smell to create flavours that are pleasing to the palate. Flavours must be added deliberately to achieve the desired taste and texture. Flavours can be similar or contrasting.
4. Teachers may also choose to share the physiology of tasting as well. The saying that we eat with our eyes first is a very real statement that pre-loads the brain to either enjoy or reject what is about to be consumed.
5. Students will rotate through the six kitchen displays and look at and/or taste all of the ingredients.
6. Afterwards, students will be provided with a bag or container each containing 250 mL of popped popcorn.
7. Students will be expected to create and name their own flavoured popcorn. Each student must use at least two ingredients.
8. Students will present their popcorn name and creation to the class and share samples if desired.
9. While sharing the popcorn, encourage the class to have a discussion about the variety of flavour combinations that have been created and differences in personal taste preferences.

## Evaluation Guidelines

Students will receive a formative evaluation based on:

- positive and active participation
- completion of the activity
- each criteria of the palate activity is met
- student's utilization of creativity when creating their own flavour profile, and
- whether correct food safety practices have been followed.

**Participation and enthusiasm are crucial. Assessment should be very objective. Risk-taking and exploration should be encouraged in order for the students to have fun with this activity.**

## Extension Activities

1. **The importance of the palate:** Palate production will be an ongoing objective in all cooking labs.

A class discussion around how other influences can make a great chef or not (e.g., smoking and chewing gum will detract from the ingredient flavour).

2. **Career exploration:** Chefs, cooks, wine tasters, brewmasters, spirit makers, food designers, food critics, and writers are all professionals who use their sense of taste as an integral part of their job.
3. **Health and nutrition:** Provide a basic understanding of how these flavours can assist in replacing salt when seasoning, if looking for an alternative to sodium



# Recipe Comprehension

## Description

In this activity students will gain the ability to properly read and comprehend a recipe, to identify its parts and sections, and to convert a standardized recipe to either increase or decrease the yield. Students will also be introduced to the proper *mise en place* involved in following the directions of any recipe.

## Lesson Objectives

Students will be able to:

- identify different recipe formats
- identify and name the parts of a recipe
- develop proper reading skills to read a recipe
- understand sensory descriptions used in the ingredients or in the directions of a recipe
- follow the directions in any basic recipe
- convert a recipe to desired yield, and
- *mise en place* a recipe.

## Assumptions

The teacher will:

- become familiar with the different recipe formats
- become familiar with the specific sections of a recipe
- understand the term sensory description, and
- understand the meaning of *mise en place*.

## Safety Considerations

Throughout this activity the students should demonstrate safe and sanitary practices.

## Terminology

**ingredients:** The ingredients of a recipe are all of the foods and flavourings that are combined to create a dish.

**method/directions:** The method or directions of a recipe are the instructions on how to prepare a dish.

**servings:** A serving is the quantity of a food given at one time to one person. In the Canada Food Guide, a serving is the recommended amount of a food you should eat each day.

**yield:** The yield of a recipe is the number of servings it will create.



## Estimated Time

2 70-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Materials

- overhead transparencies (or digital files) with recipes in the three different formats
- class handout: narrative recipe for the class to prepare
- aprons
- food (to be determined by the recipes chosen by the teacher)

## Resources

- worksheets created by the teacher
- recipe chosen by the teacher

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 414–454.

# Demonstrating Skills And Knowledge

## Procedure

This activity is an introduction of how to properly read, comprehend, convert, and *mise en place* a recipe.

Students will use this information throughout the course.

### Day 1: Recipe Comprehension (Teacher-led Activity)

The teacher will outline the parts of a recipe and will then ask the students to look at three recipes in different formats. Which one is the easiest to read? The hardest?

Students will then convert a recipe to a new yield.

### Day 2: Following a Recipe

The teacher will hand out a recipe that the students will prepare in their groups. Before the students begin, the teacher will read over the steps for following a recipe (e.g., read over the entire recipe, gather all necessary supplies and equipment, prepare according to the directions, and determine doneness).

In their groups, the students will then *mise en place* and prepare the recipe following the correct steps.

**While the students are working on their recipe reading and comprehension skills, the teacher will observe and look for the students using proper recipe skills.**

## Evaluation Guidelines

**Safety:** This is a continuing objective. Students should be working in a safe and sanitary way.

**Tools and equipment:** This is a continuing objective that will be assessed using formative methods. The students will show evidence of proper procedures involved in the preparation of the recipe.

**Recipe comprehension:** While this is a continuing objective that will be assessed in practical labs, the student can be evaluated for correct *mise en place* and its timely production and for the final product.

## Extension Activities

Students will be continuously evaluated on this Activity Plan throughout the course.



# Introductory Knife Skills

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## Description

The knife is an important basic tool used in the kitchen. In this activity students will learn the parts of a knife; about types of knives, and the materials used to construct them, as well as the importance of using correct, consistent cutting techniques.

## Lesson Objectives

Students will be able to:

- handle a knife safely
- handle a knife correctly
- correctly place the guiding hand when cutting
- identify a variety of commonly used kitchen knives correctly
- identify a variety of knife cuts by their shape and size
- demonstrate a variety of knife skills, and
- compare the difference between honing and sharpening knives.

## Assumptions

- Students have received orientation on the subject of kitchen and food safety.
- The teacher will be familiar with and will utilize correct knife skill techniques using appropriate resources.
- The teacher will provide a variety of ingredients for knife cutting activity.
- The facility will supply the correct knives and equipment required to complete the activity.

The following Activity Plan is to be completed prior to this Activity Plan:

- Workstation Set-up

## Safety Considerations

- Ensure the use of required personal protective equipment.
- Practise safe knife handling and use.
- Use correct knife cleaning procedures.
- Ensure the proper sanitizing and storage of knives upon completion of the activity.



## Terminology

### Knife Materials

**carbon steel:** Carbon steel is steel that contains a certain percentage of carbon, which determines the characteristics of the steel.

**high-carbon stainless steel:** High-carbon stainless steel is carbon steel that also contains chromium, giving it the best qualities of both carbon steel and stainless steel.

**stainless-steel alloy:** Often used in making cutlery, stainless steel is an alloy of iron that contains 10.5% or more of chromium. The alloy is able to resist tarnishing and rust.

## Types of Knives

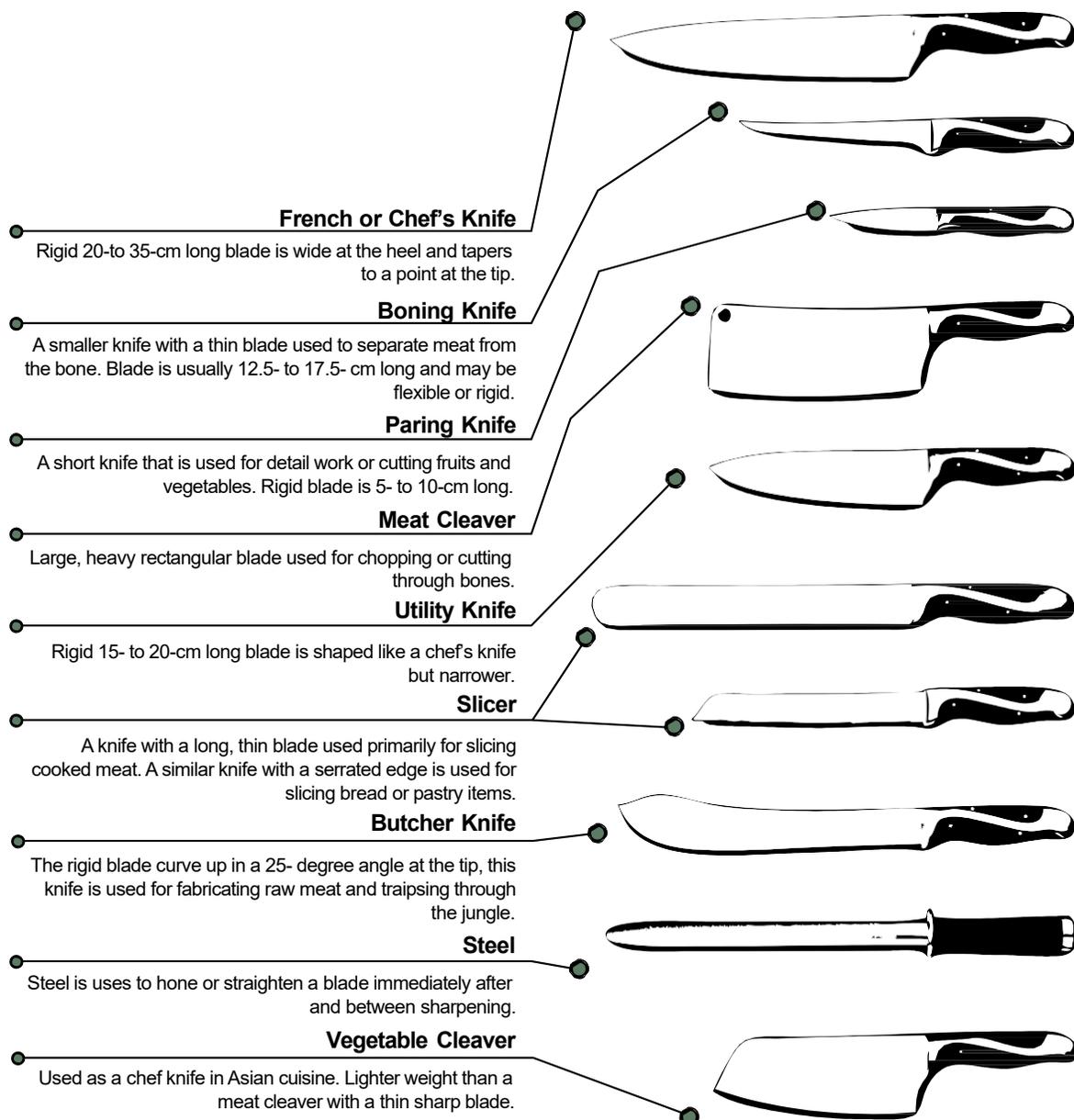
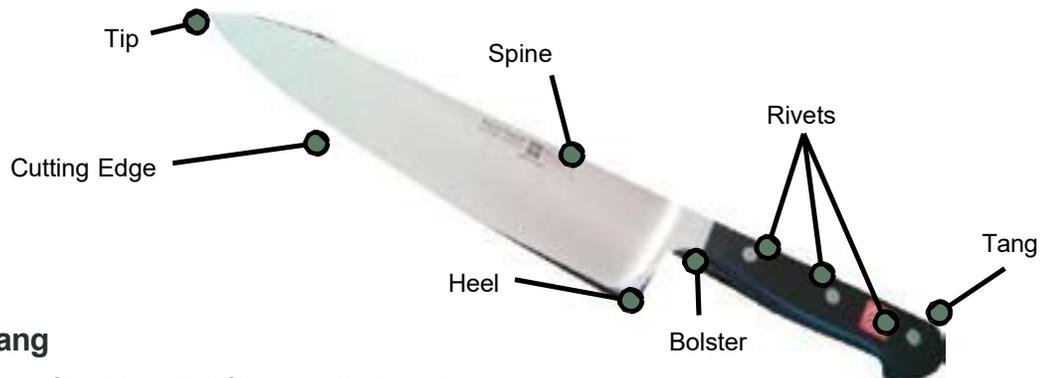


Figure 3—Types of knives

## Knife Parts



### The Tang

- a portion of the blade that fits inside the handle
- the best knives are made with a full tang running the length of the handle
- they also have a bolster where the blade meets the handle
- cheaper knives may have a  $\frac{3}{4}$  length tang or a thin "rattail" tang
- a full tang is best because it provides support, durability and balance

**Figure 4**—Kinife parts

### Knife Cuts

- Large, medium, small dice
- Batonnet
- Chop
- Mince
- Shred

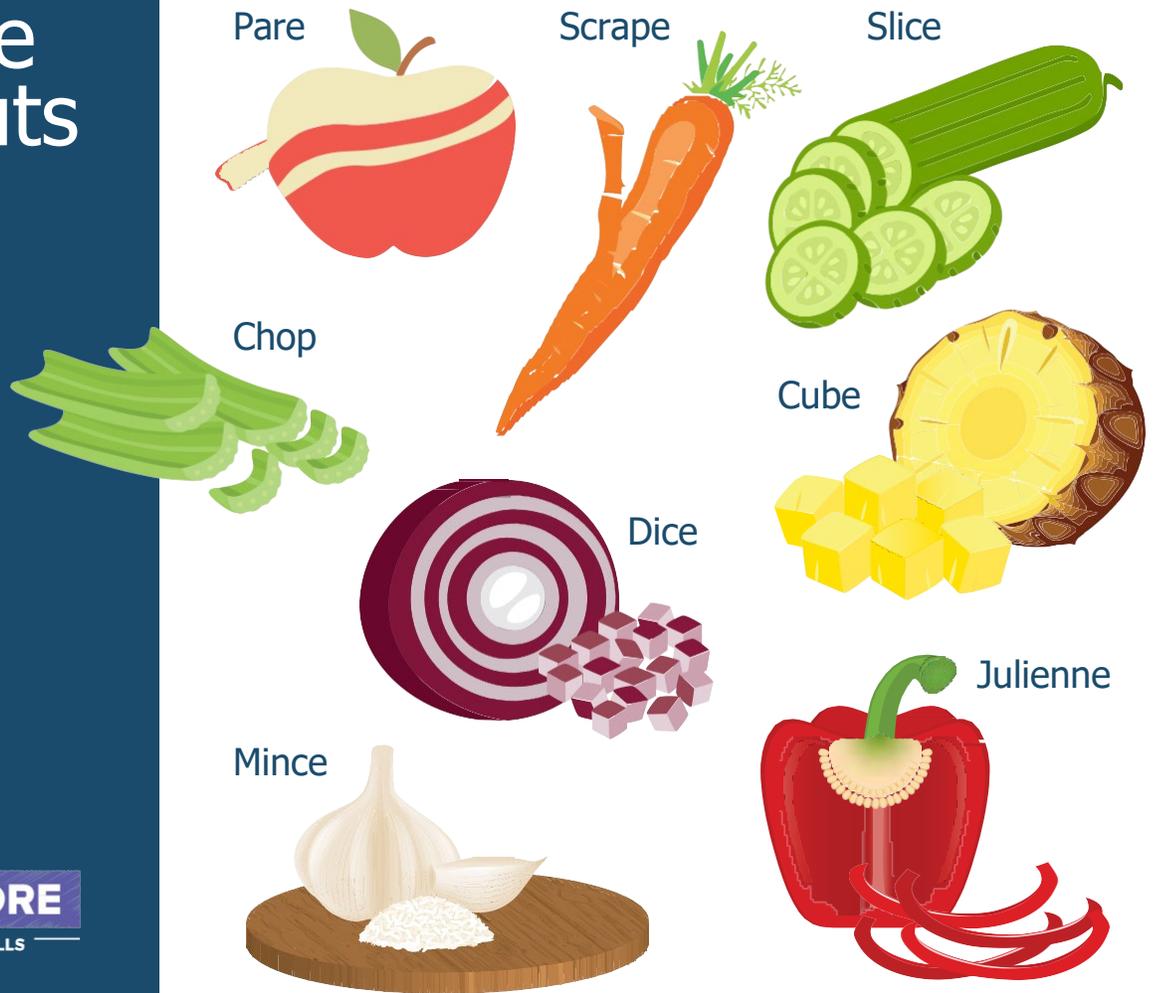


Figure 5—Knife cuts

## Knife Cuts & Dimensions

Julienne



1 mm x 1 mm x 4

Matchstick



2 mm x 2 mm x 4

Baton



5 mm x 5 mm x 5

Pommes Frites



1 cm x 1 cm x 7

Pommes Pont Neuf



1.5 cm x 1.5 cm x 8

Turned



Brunoise



2 mm x 2 mm x 2

Small Dice



5 mm

Medium Dice



7 mm

Large Dice



1 cm

Paysanne



1 cm x 1 cm x 2

ita | YOUTH

**EXPLORE**

TRADES SKILLS

Figure 6—Knife cut dimensions

### Estimated Time

2 70-minute classes

### Recommended Number of Students

Up to 24

### Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- chef's knives
- paring knives
- vegetable peeler
- cutting boards

## Materials

An assortment of foods required for knife skills practice (potatoes, carrots, onion, celery, etc.)

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 173–180 and 188–197.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., Hoboken, New Jersey. 2014

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1: Teacher-led Activity

#### Knife cut station set-up and knife cutting demonstration

1. The teacher will demonstrate the proper procedure for setting up a knife cutting station.
2. The equipment at the station will consist of a cutting board, chef 's knife, paring knife, vegetable peeler, a container of clean water to store knife cuts, clean towel, sanitation, and compost. Class discussion about the importance of sanitation in the kitchen is recommended.
3. The food at the station will consist of three potatoes, two medium carrots, and one onion.
4. The teacher will demonstrate the proper cleaning and peeling of each of the vegetables.
5. The teacher will introduce the class to each of the knives and their specific uses.
6. The teacher will demonstrate large, small, and medium dice using each of the three potatoes.
7. The teacher will demonstrate the batonnet (French fry cut) using the carrot.
8. The teacher will demonstrate rough chop and mince with the onion.
9. Class discussion to involve the importance of consistency in knife cuts as well as knife safety, correct technique, and specific sizes of each cut.
10. Encourage the class to compare and contrast the knife cuts and to discuss the possible uses for each of the cut vegetables.
11. The class will store and label each of the vegetables properly for future use.
12. The class will break down the station and clean the demonstration table.

### Day 2: Student-led Activity

1. The student will set up a proper knife cutting station.
2. The equipment at the station will consist of a cutting board, chef's knife, paring knife, vegetable peeler, container of clean water to store knife cuts, clean towel, sanitation, and compost. Class discussion about the importance of sanitation in the kitchen is recommended.
3. The food at the station will consist of three potatoes, two medium carrots, and one onion.
4. The student will clean and peel all of their vegetables, making sure to store peeled potatoes in the container of water.
5. The students will use each of their three potatoes to cut small, medium, and large dice.
6. The students will cut batonnet with each of their carrots.

7. The students will use one half of their onion to produce rough chop and the other half to produce mince.
8. As students finish their knife cuts, have them display each of them on their cutting boards. Remind students of the importance of keeping their station clutter-free and sanitized. Compost to be separated from usable waste.
9. Have the class compare their own knife cuts—is the large dice all the same size?
10. Have the class compare their knife cuts with the knife cuts of other students.
11. Have the class combine the knife cuts for storage. All large dice in one container, all medium dice in one container, and so on.
12. The class will store and label each of the vegetables properly for future use.
13. The class will break down the station and clean their stations.

### Evaluation Guidelines

The students and teacher can evaluate the knife cuts through measurement and comparison in order to establish consistent practice moving forward.

Students can be evaluated on consistency of cuts, minimization of waste, and following of proper safety and sanitation procedures.

Emphasis should be placed on student participation and effort. The students can expect to see improvement in their basic knife skills as they progress through each of the cook Activity Plans.

### Extension Activities

Students should be encouraged to practise their knife skills in an everyday setting in order to see improvement in their knife skills. Additional knife cuts can be discovered as the students progress through the cook Activity Plan.

Creating recipes or dishes that utilize the knife cuts will help the students to understand their importance.

# Beginning Butchery

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## Description

This Activity Plan begins with a teacher-led demonstration from a selected recipe. The students then prepare what was demonstrated. Students will be introduced to the methods, skills, and knowledge needed to properly and safely use a chef's knife.

### Option 1: Butcher a whole chicken

Individually or in small groups, students will follow a step-by-step demonstration of cutting a whole chicken.

### Option 2: Debone a chicken leg with thigh attached

Individually or in small groups, students will follow a step-by-step demonstration of deboning a chicken leg with thigh attached.

## Lesson Objectives

Students will be able to:

- handle and prepare food safely
- demonstrate safe knife skills
- describe basic chicken anatomy (back, breast, thigh, leg)
- safely employ butchering techniques
- explain how to minimize waste during product utilization
- demonstrate selecting the correct knife for the task, and
- stop the cutting board from slipping (damp towel under or non-slip board).

## Assumptions

The student will have a good understanding of:

- basic food safety and sanitation practices, and
- knife skills, techniques, and safety.

The instructor will have a basic understanding of the methods, procedure, and knowledge needed to complete the butchery lesson/demonstration selected.



## Safety Considerations

- The teacher and students should possess a good understanding of basic food safety procedures.
- The teacher and students should have good personal safety awareness.
- Prepare the cutting board so it will not slip. Keep meat refrigerated until needed, then wrapped and stored quickly after demonstration (safe food practices, danger zone considerations).

## Terminology

**butchery/fabrication:** Meat fabrication or butchery is when an animal carcass is cut up into consumer cuts and boned meat.

**chef's knife:** A chef's knife is used for chopping, dicing, and slicing a variety of foods. The blade is usually about 20 cm long and curves upward toward a narrow point.

**chop:** To chop a food means to cut it into pieces using repeated blows of a knife.

**cube:** To cube a food means to cut it into box-shaped pieces of equal size and proportions.

**cutting board:** A cutting board is a flat piece of wood or other material used in the kitchen as a surface on which various foods are placed for cutting or chopping.

**debone:** To debone an animal's carcass means to remove all of its bones, leaving only cuts of meat. Deboning is usually done with poultry.

**dice:** To dice food means to cut it into small cubes.

**julienne:** To julienne food means to cut it into short, thin strips.

**paring knife:** A paring knife is a kitchen knife that has a short, stiff, pointed blade. Paring knives are usually used to peel or cut thin pieces from a fruit or vegetable.

**peeling:** A peeling is a strip of the outer skin, or peel, of a fruit or vegetable.

**serrated edge:** The serrated edge of a knife is an edge that has notches or teeth like a saw.

**slice:** A slice is a thin, broad piece cut off of a food, such as bread.

## Estimated Time

2 60–75-minute classes

One class involves demonstration and cutting of ingredients. The second class is a lab in which the pre-cut food is prepared as per the chosen recipe. An additional class could include using the leftovers (Chicken Taco Salad, Hot Sandwich, Stir Fry).

## Recommended Number of Students

24 (standard lab numbers)

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- aprons
- butcher knife
- cleaners and sanitizers
- cloths
- containers
- cutting board
- gloves
- knives
- masking tape and marker for name and date
- paring knife
- plastic wrap or freezer bags
- whole fresh chicken

## Resources

Posters and handouts showing cut sizes and their names

### Online:

**“How to Debone a Chicken.” Howcast. Sept. 3, 2008.**

<https://www.youtube.com/watch?v=Jw2xABXr4uE>

**“How to Debone a Chicken Leg.” KeefCooks. May 23, 2015.**

<https://www.youtube.com/watch?v=Pm1ctMsWIPU>

**“Cuts of Vegetables.” Vahchef. April 78, 2013.**

<https://www.youtube.com/watch?v=kd6-1v2HCho>

# Demonstrating Skills And Knowledge

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## Procedure

**Note:** As educators we must be mindful that some students may be averse to cutting up a whole chicken or handling meat. The teacher is encouraged to have alternative projects for this activity and maybe even the demonstration.

### Day 1: Deboning Demonstration

#### Knife cut station set-up and knife cutting demonstration

1. Set up the cutting board so it will not slide. Ensure that it has rubber legs, or place a damp cloth underneath.
2. Introduce the knives students will be using: chef's, butcher, and paring.
3. Talk about the importance of safety when using the knife (have it sharp), how to walk with a large knife (hold by the handle down by your side).
4. Wash knives separately and demonstrate holding the handle and whipping from the dull side. For safety reasons, do not put in a sink full of soapy water.
5. Demonstrate how to grip the knife (hold the handle, with the thumb and first finger holding the blade).
6. Demonstrate the cutting of the chosen food, deboning either the whole chicken or the chicken leg.
7. The students will then cut the ingredients, wrap them, label them with their names, and put them into the fridge for the next lab day.

### Day 2: Recipe Demonstration and Preparation

The teacher will demonstrate the chosen lab. Students will use the recipe and follow the demonstration to prepare the lab.

## Evaluation Guidelines

Culinary Arts Rubric on Page 6.

## Extension Activities

To further their skills and knowledge, students could:

1. Visit a chicken farm or beef ranch.
2. Visit a butcher. Have students watch the butcher cut up large pieces of meat. Have them examine how the butcher holds and uses a knife.
3. Talk about the nutrition of chicken and the differences between organic, free range, and cage-raised chickens.
4. Discuss the role of the Canadian federal government in hiring inspectors for poultry, beef, and pork slaughterhouses.
5. Have the students select recipes for the meat of a deboned chicken. How many parts could they use, resulting in how many meals? (Possible answers: chicken breast, stuffed chicken legs, chicken sandwiches, chicken salad, wraps, soup)

## Culinary Arts Rubric

	1	2	3	4	5	6
<b>Personal Hygiene</b>	Chose not to follow outlined personal hygiene guidelines.	Hair not restrained throughout the entire class. Prompting required to put on appropriate clothing. Hands washed with prompting. Required consistent direction.	Hair not restrained throughout the entire class. Prompting required to put on appropriate clothing. Hands washed but with multiple reminders.	Hair restrained. Closed-toe shoes, long pants, apron/jacket worn. Hands washed. Multiple reminders are required.	Hair restrained. Closed-toe shoes, long pants, apron/jacket worn. Hands washed. All with minimal direction or reminders.	Hair restrained. Closed-toe shoes, long pants, apron/jacket worn. Hands washed. All without any direction or reminders.
<b>Work/Organization</b>	Station is unorganized. Improper tools have been selected and safety procedures have not been followed despite assistance and direction.	Station is set up, appropriate tools and ingredients are selected with consistent direction. Outlined safety procedures are followed with monitored	Station is set up, appropriate tools and ingredients are selected with some direction. Outlined safety procedures are followed with some assistance.	Station is set up, appropriate tools and ingredients are selected for the assigned task. All outlined safety procedures are followed. Multiple reminders are	Station is set up, appropriate tools and ingredients are selected for the assigned task. All outlined safety procedures are followed. All with minimal direction or	Station is set up, appropriate tools and ingredients are selected for the assigned task. All outlined safety procedures are followed. Shows initiative. All without
<b>Time Management</b>	Unacceptable time management has resulted in the incompletion of the lab.	Poor use of time. Ingredients are not obtained in a timely manner. Does not stay in the station or on task. Tasks are not completed in a timely manner despite some assistance. Station is not adequately	Satisfactory use of time. Ingredients are obtained in a timely manner. Stays in the station and on task. Tasks are completed in a timely manner but with some assistance. Station is not adequately cleaned up on time	Efficient use of time. Ingredients are obtained at once. Stays in the station and on task. Tasks are completed in a timely manner but with some assistance. Station is cleaned up on time.	Efficient use of time. Ingredients are obtained at once. Stays in the station and on task. Tasks are completed in a timely manner but with some prompting. Station is cleaned up on time.	Efficient use of time. Ingredients are obtained at once. Stays in the station and on task. Tasks are completed in a timely manner. Station is cleaned up on time.
<b>Follow food safety procedures</b>	Does not follows outlined food safety procedures despite direction and assistance.	Follows outlined food safety procedures with consistent direction and assistance.	Follows outlined food safety procedures with some direction and some assistance.	Follows all outlined food safety procedures with some direction or reminders.	Follows all outlined food safety procedures with minimal direction or reminders.	Follows all outlined food safety procedures without any direction or reminders.
<b>Apply correct cooking procedures / techniques</b>	Outlined procedures and techniques are not followed despite assistance and consistent direction. Does not demonstrate understanding of outlined procedures and techniques.	Outlined procedures and techniques are followed with assistance and consistent direction. Limited understanding of outlined procedures and techniques.	All outlined procedures and techniques are followed with some direction or reminders. Shows a satisfactory understanding of outlined procedures and techniques.	All outlined procedures and techniques are followed with some direction or reminders. Shows a good understanding of outlined procedures and techniques.	All outlined procedures and techniques are followed with minimal direction or reminders. Shows an excellent understanding of outlined procedures and techniques.	All outlined procedures and techniques are followed without any direction or reminders. Shows an excellent understanding of outlined procedures and techniques.
<b>Final Product</b>	Final product has not met the outlined criteria. Constant supervision is required.	Final product has met some of the outlined criteria. Requires consistent direction and assistance.	Final product has met most of the outlined criteria. Satisfactory presentation. All with some direction or assistance.	Final product has met the outlined criteria. Good presentation. All with minimal direction or assistance.	Final product has fully met the outlined criteria. Excellent presentation. All with minimal direction or assistance.	Final product has fully met the outlined criteria. Excellent presentation. All without any direction or assistance.

# Stock

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## Description

Students will explore beef, fish, chicken, and vegetable stocks and learn how they are used in preparing soups, sauces, and other foods. Students will prepare a chicken or vegetable stock from scratch.

## Lesson Objectives

Students will be able to:

- identify different varieties of stock
- list the ingredients used in preparing stock
- summarize methods and procedures for creating stock
- correctly use the equipment needed to prepare stock
- understand and distinguish the uses of stocks in food preparation, and
- correctly store and preserve stocks.

## Assumptions

- Students have received orientation on the subject of kitchen and food safety.
- Students have received orientation on the subject of measuring and conversion.
- The teacher will become familiar with and utilize correct stock-making techniques using appropriate resources.
- The teacher will provide a variety of ingredients for the stock-making activity.

The following Activity Plans are to be completed prior to this Activity Plan:

- Introductory Knife Skills
- Workstation Set-up
- Recipe Comprehension

## Safety Considerations

- Ensure the use of required personal protective equipment.
- Ensure safe operation of stoves and equipment.



## Terminology

**acid products:** Acid products include ingredients such as lemon juice, vinegar, or tomato. These products speed coagulation in protein and aid in dissolution of connective tissue.

**bones:** Bones refer to the skeletal system of an animal.

**boil:** To boil is to cook foods quickly in rapidly boiling water (or another liquid) at 100°C (212°F)

**bouquet garni:** A *bouquet garni* (Fr.) is a mixture of fresh herbs and other aromatics, tied in a bundle and used for flavouring.

**meat:** Meat is the edible flesh of an animal, fruit, or nut.

**mirepoix:** *Mirepoix* (Fr.) is a mixture of diced/chopped onions, carrots, and celery used for flavouring.

**sachet:** A sachet is a mixture of herbs and spices tied in a cheesecloth bag. The bundle is tied to the handle of the stockpot to make it easy to remove.

**stock:** Stock is a liquid made by boiling meat, vegetables, fish, or other food. It is used as a base for making soups, sauces, etc.

## Estimated Time

2 60–75-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- large stockpot
- chef's knife
- paring knife
- cutting board
- measuring cups

## Materials

- bones
- *mirepoix* (carrots, onion, celery)
- seasonings
- cheesecloth

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 414–454.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1: Teacher-led Activity

1. The teacher will lead a class discussion on the key ingredients used in making of beef, chicken, fish, and vegetable stocks, covering each of the terms listed in the terminology section.
2. The teacher will discuss the types of bones used in specific stocks as well as the difference between white and brown stock.
3. The teacher will discuss mirepoix and the ratio required in standard mirepoix.
4. The teacher will discuss the importance of seasonings and spices and their use in stock making. The teacher will compare a sachet and a bouquet garni.
5. The teacher will discuss the proportions of 50% bones, 10% mirepoix, and 100% water, and explain how to measure each of the ingredients.
6. The teacher will guide the students in creating a class list of equipment and ingredients required for making chicken stock from a standardized recipe, including the correct measurements and conversions required.

### Day 2: Student-led Activity

1. The class will review the list of ingredients and equipment required for making the chicken and/or vegetable stock.
2. The students will gather all of the ingredients and equipment required.
3. The students will chop the mirepoix as required.
4. The students will rinse the chicken bones in cold water.
5. The students will place the bones in a large stockpot and add cold water to completely cover the bones.
6. The students will bring the water to a boil, and then reduce the heat so that the stock is simmering. The students will skim the scum using a skimmer or perforated spoon.
7. The students will add the mirepoix and seasonings to the stockpot.
8. The students will allow the stock to continue to simmer as they continue to skim.
9. The students will clean and sanitize the working area.

**Recommended time for making stock with chicken bones is 3–4 hours. The instructor will be required to cool and store the stock following completion of the activity.**

## Evaluation Guidelines

Students will be evaluated on:

- participation and effort in the stock-making activity
- teamwork and cooperation while participating in a group activity, and
- following safe food handling and sanitation practices in the kitchen lab.

## Extension Activities

Students may be given the opportunity to:

- create other stocks such as beef, vegetable, or fish
- strain, vent, and store the stock, and
- compare and contrast the stock made from scratch to a stock made from a commercial base.



# Let's Make Soup!!!!

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## Description

In this activity students will use previously made stock to make either a clear chicken vegetable soup or a creamy potato chowder following a standardized recipe. They will then taste, compare, and contrast the finished products for correct seasoning, texture, and consistency.

## Lesson Objectives

Students will be able to:

- identify the difference between a clear soup and a thick soup and the methods of preparing them
- describe the characteristics of clear soups and thick soups
- identify the ingredients and techniques that are used to make a soup thick
- taste, season, and adjust finished soups, and
- taste and compare their finished soup with a soup prepared by another group.

## Assumptions

- Students have received orientation on the subject of kitchen and food safety.
- Students have received orientation on the subject of measuring and conversion.
- The teacher will become familiar with and utilize correct soup-making techniques using appropriate resources.
- The teacher will provide a variety of ingredients for the soup-making activity.

The following Activity Plans are to be completed prior to this Activity Plan:

- Introductory Knife Skills
- Workstation Set-up
- Recipe Comprehension
- Stock

## Safety Considerations

- Ensure the use of required personal protective equipment.
- Ensure safe knife handling and use.
- Students will follow correct tasting procedures (e.g., one-use spoon).
- Students will use proper cooking equipment, temperature, and tools in the soup preparation.
- Students will cook soup to the required temperature of 74°C.



## Terminology

**broth:** A broth is a thin liquid consisting of meat, vegetables, poultry, or fish simmered for long periods of time.

**clear soup:** A clear soup is a broth-based, clear liquid that is generally flavourful, and is made by simmering meat, vegetables, poultry or fish for long periods of time.

**garnish:** To garnish is to decorate a plate or dish to make it more visually appealing.

**mirepoix:** *Mirepoix* (Fr.) is a mixture of diced/chopped onions, carrots, and celery used for flavouring.

**soup:** Soup is a liquid food made by boiling meat, fish, vegetables, and seasonings in stock or water.

**stock:** Stock is a liquid made by boiling meat, vegetables, fish, or other food. It is used as a base for making soups, sauces, etc. More technically, stock refers to a liquid prepared by simmering bones.

**thickened soup:** Thickened soup is made by adding a thickening agent such as flour, cornstarch, potatoes, or cream to a soup.

**thickening agent:** A thickening agent is used to increase the density of a soup or other dish. Examples are flour, cornstarch, potatoes, or cream.

## Estimated Time

2 60–75-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- chef's knife
- cutting board
- heatproof spatulas
- large stockpots
- paring knife
- soup ladle and serving bowls
- vegetable peeler

## Materials

- copies of the standardized recipe for chicken vegetable rice soup (Gisslen, p. 235) or comparable recipe
- copies of the standardized recipe for potato chowder (Gisslen, p. 253) or comparable recipe

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 403–410.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1: Teacher-led Activity

1. The teacher will discuss the classifications of soup and their differences.
2. The teacher will lead the class in reviewing the standardized recipes, including measurements and conversions.
3. The teacher will divide the class into small groups (2–4).
4. The teams will decide on which recipe they would like to prepare, with one-half of the groups preparing the clear chicken soup and the other half creating the potato chowder.
5. The team members will work together to create a work plan, including an equipment list and ingredient list.
6. The teacher will review the work plans and help the students make comparisons and corrections in order to create plans that will be successful in the kitchen lab.
7. The students will set up their kitchen stations, complete with sanitation equipment.
8. The students will *mise en place* their equipment and ingredients, utilizing their previously completed knife cuts and stock.
9. The students will label and store their *mise en place* in anticipation of making the soup in the next class.
10. The students will clean and sanitize their workstations.

### Day 2: Student-led Activity

1. The groups of students will review their recipes and set up their kitchen workstation complete with their previously completed *mirepoix* and sanitation.
2. The students will prepare the soup following the steps in the recipe that they have chosen.
3. The students will taste and adjust the seasoning of the soup that they have created.
4. The students will ladle out small portions of the completed soup into bowls for each of the other groups to taste. (For example, if there are six groups participating each group will ladle out six bowls for sharing.)
5. The students will be encouraged to taste each of the soup samples created, but will not be evaluated.
6. The students will analyze the soups for garnish, temperature, texture/thickness, and taste.
7. The students will compare and contrast the similarities and differences between the clear and the creamy soups.

8. The students will vent, label, and store in the fridge any leftover soup.
9. The students will clean and sanitize their workstations.

## Evaluation Guidelines

Students will be evaluated on participation, teamwork, and the successful completion of the task, including:

- clarity of clear soup
- consistency of thickened soup (chowder)
- consistency of knife cuts (vegetables) in the soup
- flavour of the soup
- texture of the soup
- choice of garnish
- temperature of soup
- student participation and teamwork
- adherence to recipe procedure
- completion in given timeframe, and
- food safety and sanitation practices.

A self-evaluation chart could be created for the student to fill in as well as an area for each student to evaluate the members of their group. This should be more of a reflection on participation and not a number or letter grade mark.

## Extension Activities

Students could expand into discovering and creating different types of soups. Examples:

- puree soups
- cream soups
- bisques
- consommé
- specialty and national soups
- soups for special diets and dietary restrictions



# Thickening Agents and Methods

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## Description

Students will gain an understanding of the gelatinization process and will be able to identify two thickening agents and how to prepare them. They then will perform different cooking methods used to thicken a liquid.

## Lesson Objectives

Students will be able to:

- identify a starch (flour) and how it absorbs a liquid in the gelatinization process
- prepare a roux (flour and fat) and a slurry (flour and water)
- identify various stages of a roux when it is cooked
- prepare a whitewash using cornstarch and cold water, and
- thicken a prepared sauce or stock through reduction.

## Assumptions

- The teacher will become familiar with the process of gelatinization and evaporation using the resources available.
- The teacher will explain that starch needs to be separated in fat (roux) or suspended in water (slurry and whitewash), and will demonstrate the preparation of a roux, slurry, and whitewash.
- The teacher will be able to demonstrate evaporation of a liquid resulting in a reduction.

## Safety Considerations

### General

- Use of proper PPE (personal protective equipment) at all times.
- All food safety procedures must always be reinforced. For example, keep hot foods hot and cold foods cold.
- Spills must be cleaned up immediately. Students are to notify the teacher of any broken glass or cooking tools.



## Lesson-specific

- Students must be made aware that hot liquids can boil over, causing spills and burns. Liquids can also splatter and/or create steam, resulting in a burn.
- Students may need to modify how they carry the pot with two protected hands on either side of the pot. If it's too heavy, students may need to modify their position or have another person do the heavy lifting. Use a cart or trolley if necessary.
- Heat-resistant tools should be used.

## Terminology

**au sec:** *Au sec* (Fr.) refers to a liquid that has been heated and reduced until it becomes sticky and nearly dry.

**boil:** To boil is to cook foods quickly in rapidly boiling water (or another liquid) at 100°C (212°F). Starch needs the liquid to boil to become absorbed and not taste pasty.

**gelatinization:** Gelatinization is the absorption of water in starch, producing a gel.

**gluten:** Gluten is a composite of proteins found in cereal grains, especially wheat, that gives dough its elasticity.

**roux:** A *roux* (Fr.) is a mixture of equal parts of flour and fat stirred together and used to thicken sauces.

**slurry:** A slurry is a thickening agent that includes a smaller amount of flour introduced into a larger amount of water and stirred, resulting in the starch being suspended in the water.

**starch:** Starch is a white, odourless, and tasteless carbohydrate that is the chief form of stored energy in certain plant material, especially cereals and potatoes.

**stir:** Stirring is a cooking technique for separating starch granules so lumps are smoothed out. Usually done with a whisk or spoon in a saucepan.

**whitewash:** A whitewash is a thickening agent made from a smaller amount of cornstarch mixed into a larger amount of water and stirred, resulting in the starch being suspended in the water.

## Estimated Time

This theory and practical can be included in other Activity Plans. Teachers can cover when demonstrating in other modules.

70 minutes total:

- 30 minutes for roux-based recipe
- 20 minutes for cornstarch or slurry-based recipe
- 20 minutes for reduction explanation

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- cheesecloth (optional)
- container for storage
- saucepan
- scraper
- spoon
- strainer—conical or sieve
- whisk

## Resources

Teachers can find demonstrations online, but they must preview to watch for correct sanitation practices, temperatures, and organization.

### **Rouxbe Cooking School. Online lessons.**

<https://rouxbe.com/cooking-school/>

# Demonstrating Skills And Knowledge

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## Procedure

### Teacher-led Activity

1. Introduce thickening agents and describe the process of gelatinization.
2. Demonstrate the preparation of a roux, mixing equal parts of fat and all-purpose flour.
3. Demonstrate cooking the roux and explain that the starch will turn a variety of colours.
4. Explain that cooking the roux for longer results in the final product having a different flavour and colour.
5. Demonstrate how to prepare a slurry. Emphasize the importance of stirring the starch before it is added to a liquid.
6. Demonstrate how to prepare a whitewash. Emphasize the importance of stirring the starch before it is added to a liquid.
7. Demonstrate the reduction of a liquid.

### Student-led Activity

1. Students will prepare a roux and cook and taste it as the starch turns brown. Milk will be added to three different stages of cooking the roux and it will be cooked until thick. Students may observe and taste the three different sauces to compare their appearances and flavours.
2. Students will prepare a slurry and cook it until thick to observe the gelatinization process.
3. Reduction will be demonstrated by cooking whipping cream on medium heat for 15 minutes to notice how thick it becomes.

## Evaluation Guidelines

The results of the student-led activity will meet the following requirements:

- desired consistency
- desired texture
- appropriate colour showing that the starch has cooked in the roux

The student will:

- work cleanly and safely
- be organized
- follow procedure with proper ingredients
- be enthusiastic and take initiatives including tasting the product to understand it
- show self-direction in helping others
- show good judgment about when to get help, and
- show an interest in fairness for others.

## Extension Activities

The roux-based sauce method can be included in these types of recipe:

- cheese sauce for broccoli
- cream soup
- cream sauce for pasta or meat
- brown sauce for roast meat
- casserole



# Cooking Methods

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## Description

Students will analyze dry-heat, moist-heat, and combination cooking methods and the appropriate use and procedures for each. They will then prepare and compare foods that utilize both dry-heat and moist-heat cooking methods.

## Lesson Objectives

Students will be able to:

- identify the differences between the dry-heat and moist-heat cooking methods
- compare the classifications of moist-heat and dry-heat cooking methods
- identify proper cooking methods that are best suited to different kinds of foods
- demonstrate techniques associated with the appropriate method of cooking relating to the recipe that will be prepared
- utilize dry-heat and moist-heat methods to prepare food, and
- demonstrate correct kitchen safety procedures and techniques.

## Assumptions

- The teacher will be familiar with correct cooking method procedures and will use appropriate resources.
- Students have received orientation on the subject of kitchen and food safety.
- Workstation Set-up and Knife Skills Activity Plans have been successfully previously completed.
- The teacher will demonstrate the dish to be prepared and all students will have a copy of the recipe.
- The teacher will have the flexibility to choose the recipe based on available resources, time, and physical space.

## Safety Considerations

- Students will practise proper use of personal protective equipment (PPE) at all times.
- Students have received orientation on the subject of kitchen and food safety.
- Workstation Set-up and Knife Skills Activity Plans have been successfully previously completed.



## Terminology

### Dry-Heat Method Terminology

**bake:** To bake is to cook in an oven without direct heat.

**broil:** To broil is to cook in an oven with direct high heat from the top.

**caramelization:** Caramelization is the process of sugar turning brown when heated. It is used in cookery to brown the outside of food and add a sweet, nutty flavour.

**deep fry:** To deep fry is to completely immerse foods in hot fat, typically a vegetable-based oil.

**dry-heat method:** The dry-heat method utilizes both air and fat to create rich flavours due to the caramelization and browning of foods.

**fry:** To fry is to cook in a pan using direct heat and enough fat to cover the bottom.

**grill:** To grill is to use direct heat to cook foods on a grill.

**pan-fry:** To pan-fry is to cook food in a pan using a moderate amount of fat.

**roast:** To roast is to use indirect heat to surround food with hot air so that it cooks evenly on all sides, typically at a higher temperature than baking.

**sauté:** To sauté is to quickly cook food in a hot pan using minimal amounts of fat.

**sear:** To sear refers to the process of caramelizing the outside of meats and poultry before the start of the cooking process.

**stir-fry:** Typically done in a wok, stir-frying is an Asian style of sautéing requiring a very hot pan in which food is constantly being moved or stirred.

### Moist-Heat Method Terminology

**moist-heat method:** The moist-heat method involves cooking foods in various amounts and types of liquids.

**poach:** To poach is to submerge food into liquid and cook it at a very low temperature.

**simmer:** To simmer is to submerge foods into a liquid and cook at a high temperature, just under boiling.

**steam:** To steam is to cook foods indirectly using steam.

**stew:** To stew is to submerge foods in a stock or other liquid, and cook at a low heat. This will result in a tender dish that has also created a sauce. If proteins are browned first, then this will become a combination method of cooking.

### Combination Methods Terminology

**braise:** Typically used for meats and poultry, to braise requires that foods are first seared, then placed in a cooking vessel along with liquid that only comes 2/3 to the top, covered, and cooked slowly at lower heat.

**combination cooking:** Combination cooking uses both dry and moist heat cooking methods. Typically, proteins are caramelized and then placed in a small amount of liquid to complete the cooking process.

## Estimated Time

1–3 70-minute classes, depending on the amount of labs chosen for this lesson

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 284–295.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

Labensky, Sarah, Alan Hause, and Priscilla Martel. *On Cooking*. 7th Canadian ed. Pearson Canada, 2017.

# Demonstrating Skills And Knowledge

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## Procedure

Students will need to be introduced to the concept of cooking methods through demonstration or another format chosen by the teacher. This lesson may simply be one day of theory or may also be used as a lab.

### Day 1

The teacher will introduce the class to a number of moist and dry heat cooking methods. This may be done using teacher-led demonstrations in combination with another lesson or activity, or simply a teacher-led lesson.

### Day 2 [If choosing to extend the lesson with a lab(s)]

1. Inexpensive ingredients may be chosen to carry out a cooking methods lab. There are many recipes for eggs or potatoes that use both dry and moist heat combinations. Dishes such as eggs benedict may be used to demonstrate the use of moist heat methods, while dry heat cooking methods using eggs could involve a frittata, quiche, or breakfast burrito. If using potatoes, students may make French fries (dry), mashed potatoes (moist) or Duchess potatoes (combination) and compare textures and flavours of the final products.
2. This Activity Plan includes two recipes: chow mein and perogies.
3. The teacher will provide students with the recipes they will be expected to reproduce in the following class.
4. Students will use their recipes and create the demonstrated dish(es), highlighting a specific cooking method as per the instructions of the teacher. Students may all make the same dish(es) or the teacher may assign various methods to different groups.
5. After cooking is complete, students will have the opportunity to compare final products, their textures, and their flavours.
6. At the end of the class, students will present to the teacher the finished product for visual and tasting assessment.

### Day 3 +

If only one cooking method was highlighted in the first demo/lab, proceed with another demonstration and lab until all cooking methods have been demonstrated and/or (where applicable) practised.

## Evaluation Guidelines

If only introducing the cooking methods as theory, a summative and/or formative assessment may be used.

For the lab, students will receive a formative evaluation on:

- positive participation in cooking labs
- observational assessment during the lab, and
- final product meets outlined and demonstrated standards.

The rubric attached to this Activity Plan may be filled in, or students may be asked to complete self- and group evaluations set up by the teacher.

## Extension Activities

This Activity Plan can be adapted in the following ways:

- international cooking
- Aboriginal cooking—example: wild rice served with buffalo meatballs or salmon
- identify local agriculture—perogies
- can be added to other Activity Plans to complete or complement their results
- nutritional information

# Chow Mein

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## Ingredients:

25 mL oil	
125 mL meat (chicken, beef, pork, tofu, egg)	¼ red pepper
1 egg	2 mL salt
1 garlic clove	15 mL soya sauce
¼ onion (diced)	200 mL water
1 carrot, peeled (cut on diagonal)	15 mL cornstarch
1 celery stalk (cut on the diagonal)	400 mL chow mein noodles (a big handful)

**Optional:** ginger, mini-corns, water chestnuts, broccoli

## Method:

1. On a cutting board cut all the vegetables before preheating the oil. Cut the carrots and celery on the diagonal to increase the surface area. Peel and crush the garlic clove. Slice the peppers into julienne.
2. Cut the meat into bite-sized pieces, or crack and mix the egg in a small glass bowl.
3. Mix 80 mL water (from the 200 mL), soya sauce, salt, and cornstarch in a small glass bowl with a fork to stir out all lumps.
4. Preheat the oil in the wok to 175°C. Be careful: if you see smoke at any time during the cooking, turn the heat down, as the next step is fire. If there is a fire, smother with the lid. Add the protein (meat or egg) into the hot oil and fry until done. Remove and place on a plate.
5. Check that there is some oil remaining to stir-fry the vegetables. Add the hard vegetables first, as they need longer to cook. Stir-fry carrots, celery, and onions. Add crushed garlic and peppers. Add 120 mL water and cover to steam. Cook 4 minutes, then add noodles, stir, and cover. Make sure to check that the noodles do not dry out and stick to the bottom. Add meat and egg. Then add the cornstarch and soya sauce mixture. Stir-fry until noodles are soft.

## Rice

125 mL rice
250 mL water
2 mL salt

## Method:

Add all ingredients and cover with a tight-fitting lid. Cook on high until water boils. Turn the heat down to low and cook for 14 minutes. Remove from heat and, without peeking, let the pot sit for 5 minutes before serving. For fried rice, make the rice ahead of time, allow it to cool, and then fry in oil.

# Ukrainian Perogies Using BC Local Ingredients

## Ingredients:

250 mL flour  
125 mL sour cream  
5 mL salt

## Fillings:

1 large or 2 small potatoes  
5 mL margarine  
60 mL grated cheddar cheese

**Optional:** You may fry perogies once boiled with margarine and diced onion.

## Method:

1. Peel and cube potatoes so they cook faster and place in medium-sized saucepan half full of water. Boil until fork tender.
2. Sift flour and salt into a large mixing bowl. Add half the sour cream. Mix with a fork until it forms together, and then add the remainder of the sour cream and stir until the dough forms a ball. You may use your hands and knead it until you have a soft dough consistency.
3. Roll the dough out on a lightly floured surface until fairly thin: just enough to hold together when it is cooked and thin enough so it is not doughy when you eat it.
4. Use a glass or biscuit cutter to cut circles. Put a clean towel over them while you prepare the filling so they don't dry out.
5. When the potatoes are fork tender, drain them, being careful not to burn yourself on the steam. Add the margarine and cheese and mash together until creamy.
6. Fill a large saucepan half-full of water and bring to a boil over high heat.
7. Filling procedure: holding one of the dough circles in your hand, put approximately 5 mL of filling on one half of the dough circle. Fold the other half over and pinch the edges together so they will not open up when you boil them. After you have prepared 6, add them to the boiling water. Put in only enough to cover the bottom of the saucepan. Continue to fill the remaining dough circles.
8. If you would like to fry the perogies, while they are boiling dice onions and add them to 5 mL of melted margarine in a frying pan. When all the perogies are cooked, mix them in with the onions and fry them lightly on medium heat. Fry until they are the desired texture and serve with a garnish. If there are bits and pieces of dough left over, boil them with the rest of the perogies, as the dough itself is very good.
9. **Other variations for fillings:** mushrooms, cottage cheese, applesauce, hamburger, bacon, yams with blue cheese.

<b>Rubric for Marking Practical Assignments</b>					
<b>Learning outcome</b>		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Use of correct techniques</b>	B2	Able to explain the cooking technique	Able to use the technique with confidence	Lacks basic understanding of the technique	Unable to use the technique
	A3	Able to summarize the recipe with understanding	Able to summarize the recipe	Understands some aspects of the recipe	Lacks understanding
<b>Work/organization</b>	A1	Explain cross-contamination and select ingredients in the correct manner	Select ingredients without cross-contamination	Random collection of ingredients	Requires more than one trip to get necessary ingredients
	A5	Actively engaged at all times (no leaning or sitting)	Engaged but not productive	Intermittently engaged	Failure to contribute, resulting in additional work for others
<b>Managing time and equipment</b>	A5	Lab finished with lab check prior to the bell	Rushed to complete lab check by the bell	Unable to complete by the bell	Late for next class
	A4	Demonstrates correct understanding of equipment	Demonstrates correct use of equipment	Identifies equipment but use is improper	No knowledge of equipment
	A3	Able to interpret and execute recipe	Able to execute recipe	Cannot demonstrate execution of recipe without some assistance	Needs assistance to execute
<b>Product appearance and nutritive value</b>	A6	Outcome resembles demonstration product	Resembles demonstration product	Product is edible	Product is not edible
	C1	Can identify a nutrient from the product and explain its function	Can identify a nutrient	Requires assistance to identify a nutrient	Unable to identify a nutrient
	C4	Can give several alternatives to increase the nutritive value of the recipe	Can explain one alternative for a healthier choice	Requires assistance to identify a healthy alternative	Unable to identify a healthy alternative
<b>Product</b>	B1	Original presentation and appropriate table setting	Plated as discussed or demonstrated in demonstration	Plating is less than appealing	Plating is unacceptably poor.

# Cooking Starches

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## Description

In this activity students will become familiar with the equipment used in cooking various starches (pasta, rice, potato) and will demonstrate different cooking methods used to prepare three different starches.

## Lesson Objectives

Students will be able to:

- identify various types of pasta and their uses
- identify various types of rice and their uses
- identify various types of potatoes and their uses
- prepare rice using the boiling, pilaf, or risotto method
- prepare potatoes, and
- prepare pasta using the big pot boiling method.

## Assumptions

- The teacher will become familiar with and utilize correct starch-making techniques using appropriate resources.
- The teacher will provide a variety of ingredients for the starch labs.

The following Activity Plans are to be completed prior to this activity:

- Introductory Knife Skills
- Workstation Station Set-up
- Recipe Comprehension

## Safety Considerations

### General

- Use proper PPE (personal protective equipment) at all times.
- All food safety procedures must always be reinforced. For example, keep hot foods hot and cold foods cold.
- Spills must be cleaned up immediately. Students are to notify the instructor of any broken glass or broken cooking tools



## Lesson-specific

- Students should be made aware that pots full of water and a starch can be heavy and may require a modified carrying position (using two protected hands on either side of the pot rather than the handle).
- Students should be made aware of the potential for burns from hot/boiling liquids as well as steam (particularly during straining).
  - Prior to straining, a proper receptacle (e.g., sieve) must be secured in the sink.

## Terminology

**al dente:** *Al dente* is a term used to describe the consistency of ideally cooked pasta (the expression literally means “tender to the tooth” in Italian).

**gelatinization:** Gelatinization is the absorption of water in starch, producing a gel.

**gratin:** A *gratin* (Fr.) is a type of potato dish similar to scalloped potatoes; creamy and brown on top.

**gratinate:** To gratinate is to brown on top.

**pilaf:** Rice pilaf refers to a rice sautéed lightly in oil before broth is added. It is then cooked to a soft consistency.

**risotto:** Risotto is dish in which a northern Italian rice is cooked in a broth to a creamy consistency.

## Estimated Time

3–5 70-minute classes, depending on the amount of labs chosen for this lesson

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- container for storage
- pots and pans of appropriate size or shape for use in assigned recipe
- saucepans with tight-fitting lids
- spider
- spoon
- strainer (conical), sieve, or colander
- towel or oven mitts for heat protection

## Materials

Standard kitchen equipment and ingredients as per recipes selected for labs

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 473–483.

McGraw-Hill Education, 2017. *Food for Today*. Page 528.

- Staple Foods of the World (includes corn, wheat, potatoes, rice, millet, and sorghum)

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey. Pages 376–377.

- See Chapter 12, “Potatoes”; Chapter 13, “Grains, Pasta and Rice”; and recipes. This resource is more for the instructor, as the information is detailed.

### Activity Sheet:

*Name that Pasta:*

<http://www.jamieshomecookingskills.com/pdfs/activity/name%20that%20pasta.pdf>

# Demonstrating Skills And Knowledge

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## Procedure

Teacher demonstrations (complete all)

- Rice: select a recipe that serves as an example of how to properly cook rice using a stovetop method.
- Pasta: select a recipe that serves as an example of how to properly cook pasta.
- Potato: select a recipe that serves as an example of how to properly cook potatoes.

Student labs (select 1 to 3)

- Rice: select a recipe for students to cook that serves as an example of how to properly cook rice using a stovetop method (not in a rice cooker).
- Pasta: select a recipe for students to cook that serves as an example of how to properly cook pasta.
- Potato: select a recipe for students to cook that serves as an example of how to properly cook potatoes.

## Evaluation Guidelines

Evaluate the students using the Culinary Arts Rubric (Page 6) for lab work as they prepare, cook, and clean up.

Points of evaluation should include:

- Texture or doneness meets requirements.
- Seasoned appropriately.
- Colour is appropriate.
- Temperature is appropriate for the dish (e.g., may be used cold in a salad or served hot).
- Finished product is held according to food safety guidelines.
- Student worked cleanly and safely.
- Student was organized.
- Student followed procedure with proper ingredients.
- Student is enthusiastic and takes initiative, including tasting the product to understand it.

## Extension Activities (Optional)

1. Create a display in the classroom, either as a poster with pictures or real samples. Display different types of rice, pasta, and potato and their descriptions. Descriptions may include where it is grown, nutritional benefit, methods, and cooking time.
2. Have a sushi chef come in and demonstrate with student participation.
3. Have a demonstration and lab on making pasta from scratch, including a sauce and/or filling.
4. Have students create a short PowerPoint assignment where they:
  - Select a starch (this can include corn, wheat, legumes, potato, rice, or pasta).
  - Research the history of the starch and where it is grown or produced.
  - Describe the cooking method, nutritional benefits, and how they help our bodies.
  - Attach a recipe using the starch.

## Culinary Arts Rubric

	1	2	3	4	5	6
<b>Personal Hygiene</b>	Chose not to follow outlined personal hygiene guidelines.	Hair not restrained throughout the entire class. Prompting required to put on appropriate clothing. Hands washed with prompting. Required consistent direction.	Hair not restrained throughout the entire class. Prompting required to put on appropriate clothing. Hands washed but with multiple reminders.	Hair restrained. Closed-toe shoes, long pants, apron/jacket worn. Hands washed. Multiple reminders are required.	Hair restrained. Closed-toe shoes, long pants, apron/jacket worn. Hands washed. All with minimal direction or reminders.	Hair restrained. Closed-toe shoes, long pants, apron/jacket worn. Hands washed. All without any direction or reminders.
<b>Work/Organization</b>	Station is unorganized. Improper tools have been selected and safety procedures have not been followed despite assistance and direction.	Station is set up, appropriate tools and ingredients are selected with consistent direction. Outlined safety procedures are followed with monitored	Station is set up, appropriate tools and ingredients are selected with some direction. Outlined safety procedures are followed with some assistance.	Station is set up, appropriate tools and ingredients are selected for the assigned task. All outlined safety procedures are followed. Multiple reminders are	Station is set up, appropriate tools and ingredients are selected for the assigned task. All outlined safety procedures are followed. All with minimal direction or	Station is set up, appropriate tools and ingredients are selected for the assigned task. All outlined safety procedures are followed. Shows initiative. All without
<b>Time Management</b>	Unacceptable time management has resulted in the incompleteness of the lab.	Poor use of time. Ingredients are not obtained in a timely manner. Does not stay in the station or on task. Tasks are not completed in a timely manner despite some assistance. Station is not adequately	Satisfactory use of time. Ingredients are obtained in a timely manner. Stays in the station and on task. Tasks are completed in a timely manner but with some assistance. Station is not adequately cleaned up on time	Efficient use of time. Ingredients are obtained at once. Stays in the station and on task. Tasks are completed in a timely manner but with some assistance. Station is cleaned up on time.	Efficient use of time. Ingredients are obtained at once. Stays in the station and on task. Tasks are completed in a timely manner but with some prompting. Station is cleaned up on time.	Efficient use of time. Ingredients are obtained at once. Stays in the station and on task. Tasks are completed in a timely manner. Station is cleaned up on time.
<b>Follow food safety procedures</b>	Does not follows outlined food safety procedures despite direction and assistance.	Follows outlined food safety procedures with consistent direction and assistance.	Follows outlined food safety procedures with some direction and some assistance.	Follows all outlined food safety procedures with some direction or reminders.	Follows all outlined food safety procedures with minimal direction or reminders.	Follows all outlined food safety procedures without any direction or reminders.
<b>Apply correct cooking procedures / techniques</b>	Outlined procedures and techniques are not followed despite assistance and consistent direction. Does not demonstrate understanding of outlined procedures and techniques.	Outlined procedures and techniques are followed with assistance and consistent direction. Limited understanding of outlined procedures and techniques.	All outlined procedures and techniques are followed with some direction or reminders. Shows a satisfactory understanding of outlined procedures and techniques.	All outlined procedures and techniques are followed with some direction or reminders. Shows a good understanding of outlined procedures and techniques.	All outlined procedures and techniques are followed with minimal direction or reminders. Shows an excellent understanding of outlined procedures and techniques.	All outlined procedures and techniques are followed without any direction or reminders. Shows an excellent understanding of outlined procedures and techniques.
<b>Final Product</b>	Final product has not met the outlined criteria. Constant supervision is required.	Final product has met some of the outlined criteria. Requires consistent direction and assistance.	Final product has met most of the outlined criteria. Satisfactory presentation. All with some direction or assistance.	Final product has met the outlined criteria. Good presentation. All with minimal direction or assistance.	Final product has fully met the outlined criteria. Excellent presentation. All with minimal direction or assistance.	Final product has fully met the outlined criteria. Excellent presentation. All without any direction or assistance.

# Emulsified Dressings

## Description

Students will be introduced to the science of emulsifiers and how they apply to mixing two unmixable ingredients to create a mayonnaise. Students will identify the proper proportions of mayonnaise ingredients and will create a mayonnaise using a whisk. They will also learn how to fix a broken mayonnaise as well as identify food safety issues when making and storing a mayonnaise.

## Lesson Objectives

Students will be able to:

- demonstrate the proper method for making a mayonnaise by hand using a whisk
- identify the role of the ingredients needed to make a mayonnaise
- describe how to fix a broken mayonnaise
- show how to safely store mayonnaise for future use, and
- demonstrate correct kitchen safety procedures and techniques.

## Assumptions

- Students have received orientation on the subject of kitchen and food safety.
- The teacher will be familiar with correct mayonnaise recipe procedures, using appropriate resources.
- Workstation Set-up and Introductory Knife Skills Activity Plans have been successfully previously completed.
- The teacher will demonstrate the dish to be prepared and all students will have a copy of the recipe.
- The teacher will have the flexibility to choose the recipe based on resources, time, and physical space.

## Safety Considerations

Students will practise proper use of personal protective equipment (PPE) at all times.

**Oil spills must be cleaned up immediately with an approved cleaner to avoid any slips or falls.**



## Terminology

**acid:** Ingredients with high acid content (pH 0 to 4.0), such as vinegar and citrus juice, do not support the growth of bacteria. Acidic ingredients are typically sour-tasting.

**emulsion:** An emulsion is a mixture of two or more ingredients that do not naturally mix.

**emulsifier:** An emulsifier is an ingredient that is used to stabilize an emulsion; it is an ingredient that enables two normally unmixable ingredients to mix.

**emulsify:** To emulsify is to combine two normally unmixable ingredients to create one solution.

**mayonnaise:** A mayonnaise is a stable emulsion of oil, acid, and an emulsifier used as a condiment or dressing.

**reconstitute:** When the ingredients in a mayonnaise separate (break), reconstituting refers to following a procedure to emulsify the ingredients again.

**season:** To season is to enhance and amplify a food's flavour in order to maximize the pleasure of the palate.

**yolk:** The yolk is the yellow part of an egg; it acts as the emulsifier in a standard mayonnaise recipe.

## Estimated Time

2 70-minute classes, depending on the amount of labs chosen for this lesson

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 298–317.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

Labensky, Sarah, Alan Hause, and Priscilla Martel. *On Cooking*. 7th Canadian ed. Pearson Canada, 2017

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1

- The teacher will introduce the class to the ingredients, methods, techniques, and science behind the preparation of mayonnaise using desired methods and materials.
- The teacher will demonstrate the mayonnaise recipe. The base mayonnaise may then be served on its own or turned into a secondary dressing such as a ranch, Caesar, or chipotle dressing.
- It is also a good idea for the teacher to purposely break the mayonnaise and demonstrate the process of reconstituting the sauce.

### Day 2

- Students will use their recipes and create the mayonnaise demonstrated by the teacher. Students may all make the same dish(es), or the teacher may assign various recipes to different groups.
- As students are cooking, the teacher will observe and assist when necessary.
- As students complete the dish, they will present it to the teacher for both visual and tasting assessment before consuming or packaging their final product.

## Evaluation Guidelines

If only teaching the emulsified dressings unit as theory, a summative and/or formative assessment will be conducted using a quiz.

For the lab, students will receive a formative evaluation on:

- positive participation in cooking labs
- observational assessment during the lab, and
- whether the final product meets outlined and demonstrated standards.

## Extension Activities

This activity can be adapted in the following ways:

- Discuss international cooking.
- Add to other modules to complete or complement their results.
- Discuss nutritional information.
- Store completed mayonnaise and use as part of a future lab.



# Vegetable Cookery

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## Description

In this introduction to vegetable cookery, students will learn the classifications of vegetables and how to purchase and store them in fresh, canned, frozen, and dried form. They will be able to identify methods of preparing and cooking vegetables as well as garnishing techniques.

## Lesson Objectives

Students will be able to:

- identify classifications of vegetables
- apply purchasing skills to various forms of vegetables
- apply storage skills to various forms of vegetables
- apply safe work practices when preparing vegetable dishes
- apply the dry-heat method of cookery to various vegetable dishes
- apply the moist-heat method of cookery to various vegetable dishes, and
- demonstrate simple garnishing techniques (e.g., a radish rose).

## Assumptions

The teacher will be familiar with:

- classifications of vegetables
- different methods of cooking vegetables
- simple garnishing techniques
- correct purchasing practices when buying vegetables, and
- the correct storage of different forms of vegetables.

## Safety Considerations

- Students will be using various knives to make different cuts of vegetables.
- Students will be using their stoves to cook vegetables.

## Terminology

**canned:** Various foods are sold in metal cans, enabling them to be stored for extended periods without refrigeration. Canned foods are often cooked and contain sauce or flavouring.

**colour retention:** Food colour can change with exposure to oxygen in air, so colour retention agents are sometimes added to food to prevent colour change.

**dried:** Dried food is food that has had all or most of its moisture removed to extend its shelf life. Drying can be done by sunlight, freeze-drying, or with the use of electrical appliances.



**dry-heat method:** The dry-heat method utilizes both air and fat to create rich flavours due to the caramelization and browning of foods.

**fresh:** Fresh food is food that has not been preserved by drying, salting, canning, freezing, or other methods. Fresh food can also refer to food that has not grown stale or been cooked.

**frozen:** Many foods are preserved by mechanical or flash freezing. Preservatives are not required in frozen foods.

**garnish:** To garnish is to decorate a plate or dish to make it more visually appealing.

**moist-heat method:** The moist-heat method involves cooking foods in various amounts and types of liquids.

**nutrient retention:** Nutrient retention is the amount of nutrients remaining in a food after cooking compared to before cooking.

**texture:** The texture of a food is the way that food feels in the mouth.

## Estimated Time

4 70-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- cutting boards
- chef's knives
- equipment for preparing vegetables (determined by the recipe chosen)

## Materials

- aprons
- vegetables to be used for dry-heat cooking
- vegetables to be used for moist-heat cooking
- vegetables to be used for garnishes

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 414–454.

# Demonstrating Skills And Knowledge

## Procedure

This Activity Plan will be an introduction to vegetables and vegetable cookery. Students will start by looking at the most common vegetables used in a commercial kitchen, and how they are classified.

### Day 1: Introduction to Vegetable Cookery

1. This will be a teacher-led activity with the teacher handing out a chart of “Commercial Kitchen” vegetable categories for the students to complete. The chart will include examples of vegetables and what features to look for with fresh, canned, frozen, and dried vegetables from each category.
2. Working in groups, the students will discuss the vegetable categories and what features of each form of vegetable are most desirable when purchasing. The students will then discuss how to store vegetables from each category. The groups will record their answers on their own sheets. Each group will share their answers with the rest of the class. The teacher will use this time to make sure students understand how vegetables are grouped in a commercial kitchen and how to purchase and store various forms of vegetables.

### Day 2: Vegetable Cookery—Dry Heat

1. The teacher will introduce this lab by demonstrating a variety of methods for preparing vegetables using dry heat.
2. This will be a group activity. Students will be working in the lab. The teacher will supply the class with the vegetable recipe or recipes that use the dry-heat method of cooking.

### Day 3: Vegetable Cookery—Moist Heat

1. The teacher will introduce this lab by demonstrating a variety of methods for preparing vegetables using moist heat.
2. This will be a group activity. The students will be working on a lab. The teacher will supply the class with the vegetable recipe or recipes that use the moist-heat method of cooking.

### Day 4: Garnishes

Students will work individually on preparing different garnishes from vegetables. The choice of garnishes to be attempted is at the teacher’s discretion. Some choices might include a tomato rose, a radish rose, or a scallion flower.

**While the students are working on the vegetable labs, the teacher will observe and look for safe and sanitary practices in the kitchen, proper station set-up, and knife handling and cutting skills that were demonstrated in previous activities.**

## Evaluation Guidelines

**Safety:** This is a continuing objective that will be assessed through formative methods. The students will be evaluated through their final product.

**Tools and equipment:** This is a continuing objective that will be assessed through formative methods. Students will be evaluated on the safe use of equipment and tools during the lab.

**Knife skills:** This is a continuing objective that will be assessed through formative methods. The students will be marked on their knife skills used in the making of the final product.

# The Salad Bar

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## Description

Students will learn the types and purposes of various salads, and the steps in making a salad, from the basic components to cleaning and preparing the ingredients, to arrangement and presentation.

This Activity Plan covers the typical ingredients in salads and may be combined with the Activity Plans that cover emulsified dressings and vinaigrettes.

## Lesson Objectives

Students will be able to:

- identify a variety of greens and garnishes used in salad preparation
- prepare a green salad bar (lettuce and leafy green based) to share as a class
- prepare a variety of greens, vegetables, fruits, starches, and protein foods for the salad bar
- evaluate quality and freshness of lettuces, greens, and fresh produce
- consider flavour and ingredient combinations in creating salads, and
- prepare and arrange a structurally correct salad.

## Assumptions

- Students have received orientation on the subject of kitchen and food safety.
- Students have received orientation on the subject of measuring and conversion.
- The teacher will become familiar with and utilize correct salad-making techniques using appropriate resources.
- The teacher will provide a variety of ingredients for the salad-making activity.
- The facility will supply the correct refrigeration, storage, and equipment required to complete the activity.

The following Activity Plans are to be completed prior to this Activity Plan:

- Introductory Knife Skills
- Workstation Set-up
- Recipe Comprehension

## Safety Considerations

- Ensure the use of required personal protective equipment.
- Safe knife handling and use.
- Proper refrigeration and storage of all food products.



- Food safety is essential when handling fresh, raw food products.
- Cooked ingredients must be cooled to below 4°C before mixing with other ingredients and mayonnaise.
- Cooked ingredients and fresh produce should not be held at room temperature.

## Terminology

**accompaniment salad:** An accompaniment salad is a salad that is intended to balance and complement the rest of the meal.

**appetizer salad:** An appetizer salad is a salad served as the first course of a meal.

**base:** The base of a salad is usually a layer of salad greens that lines the serving dish.

**body:** The body of a salad is the main ingredient, such as a mix of vegetables, meats, or fruits.

**dessert salad:** A dessert salad is usually sweet and may contain fruits, nuts, sweetened gelatin, and other sweet items.

**dressing:** A dressing is a sauce for salads that commonly contains oil and vinegar, and which may or may not be emulsified.

**garnish:** To garnish is to decorate a plate or dish to make it more visually appealing.

**main course salad:** A main course salad should be large enough to serve as a full meal. It should contain all the nutrients of a well-balanced meal, including protein and a variety of vegetables, greens, or fruits.

**salad greens:** Salad greens is a generic term that refers to leafy vegetables often used in salads. Examples include various types of lettuce, watercress, and spinach greens.

**separate course salad:** A separate course salad is a light salad served before dessert, with the purpose of refreshing the palate before the next course.

**vinaigrette:** Vinaigrette (Fr.) is a salad dressing made with oil, vinegar, and various seasonings.

## Estimated Time

2 60–75-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- salad station—cold table (storage)
- salad spinner
- tongs
- chef's knife
- paring knife
- vegetable peeler
- cutting board
- mixing bowls
- gloves
- serving spoons
- salad plates
- containers for storage

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 299–314.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1: Teacher-led Activity

1. The teacher will facilitate a discussion with students about salad ingredients, classifications, and specific preparation methods.
2. The teacher will create a large salad bar map for the students to build by contributing ideas. The objective is to build a balanced salad bar for the class to prepare and enjoy.
3. The students will brainstorm the “ideal” salad bar consisting of ingredients that they would choose when creating a salad.
4. The students will choose a variety of greens, lettuces, sprouts, vegetables, fruits, and proteins, and the teacher will record them on the salad bar map.
5. Once the salad bar map is created, the students will evaluate the variety and balance of their salad bar.
6. The students will use the map to create a real salad bar in the next block.

### Day 2: Student-led Activity

1. The students will review their salad bar map.
2. The teacher will put students into small groups in order to prepare a specific category of ingredients for the salad bar—proteins, vegetables, fruits, miscellaneous.
3. The students will set up their kitchen workstations complete with necessary equipment and sanitation.
4. The groups of students will prepare their designated ingredients and place in the salad bar.
5. Upon completion of the salad bar, the students will build their own salads from the salad bar that they have created.
6. The students will eat their salads and engage in a class discussion about ingredient choices and combination.

## Evaluation Guidelines

The salad created will meet the following requirements:

- Desired texture—lettuce is not wet or wilted; potatoes are cooked.
- Flavour balance, acid, salt, and appropriate seasoning.
- Colour is appropriate and balanced.
- Temperature is appropriate—starches cooled before mixing with dressing.
- Finished product is held according to food safety guidelines.
- Students work cleanly and safely.
- Students follow procedures with proper ingredients.
- Students are enthusiastic and take initiative, including tasting the product to understand it.

## Extension Activities

This Activity Plan can be adapted in the following ways:

- bound salad
- vegetable, legume, grain, and pasta salads
- fruit salads
- composed salads
- gelatin salad

This Activity Plan introduces the possibility of exploring vegan, vegetarian, and other alternative diets and food choices.

This Activity Plan can be expanded to introduce lesson material on food sustainability, using locally produced food sources, and agriculture in the classroom.



# Sandwich Building

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## Description

Students will identify the types of sandwiches and their preparation methods, as well as types of breads, fillings, and spreads. They will analyze the taste and ingredients of sandwiches they prepare and share with classmates.

## Lesson Objectives

Students will be able to:

- identify the different types of breads, fillings, and spreads used in sandwich making
- experiment with the taste of a variety of ingredients used in building their own sandwich, and
- critique and evaluate the flavours and flavour combinations that are created in the variety of sandwiches.

## Assumptions

- Students have received orientation on the subject of kitchen and food safety.
- Students have received orientation on the subject of measuring and conversion.
- The teacher will become familiar with and utilize the correct sandwich making procedures using appropriate resources.
- The teacher will prepare a variety of ingredients (meats, vegetables, spreads) and provide a variety of breads for the students.

The following Activity Plans are to be completed prior to this Activity Plan:

- Introductory Knife Skills
- Workstation Set-up
- Recipe Comprehension

## Safety Considerations

- Ensure the use of required personal protective equipment (PPE).
- Ensure proper knife handling safety for sandwich preparation.

## Terminology

**portion control:** Portion control refers to limiting the serving size of a food to regulate the number of calories in a serving.

**sanitation:** Sanitation refers to the killing of microbes through the use of chemicals and/or temperature.



## Cold Sandwiches

**multi-decker (club):** A multi-decker sandwich is one that is constructed of two or more slices of bread with various fillings between the slices.

**open-faced:** An open-faced sandwich consists of a single slice of bread with one or more fillings placed on top.

**simple cold sandwich:** A simple cold sandwich consists of two slices of bread with one or more cold food items placed between them. The bread is usually spread with butter, margarine, and/or a condiment such as mayonnaise.

**tea sandwich:** A tea sandwich is a small sandwich meant to be eaten in two or three bites. It is also called a *finger sandwich*.

**wrap:** A wrap is a type of sandwich consisting of a soft flatbread rolled around any of a variety of fillings.

## Hot Sandwiches

**deep-fried sandwich:** A deep-fried sandwich is made by completely immersing a regular sandwich in hot oil so that it cooks evenly on all sides. It is often dipped in batter before frying so that it does not come apart during cooking.

**grilled sandwich (toasted sandwich):** A grilled sandwich is one that is grilled on both sides using a stovetop pan, a Panini grill, or a toaster oven. The bread is toasted to a light brown, and the fillings are heated. If cheese is included, it will melt.

**hot wrap (burrito):** A hot wrap is a sandwich made with a flatbread rolled around a filling of warmed ingredients (often containing shredded lettuce as well as chicken, beans or beef).

**open-faced hot sandwich:** An open-faced sandwich can be made with hot food such as eggs, meat and sauce or gravy, etc.

**simple hot sandwiches (grilled cheese, hamburgers):** A simple hot sandwich is one that contains hot ingredients or is heated after it is made.

## Estimated Time

2 60–75-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- cold food storage (inserts, sandwich table, or similar set-up)
- portion scoops
- spreaders
- cutting board
- serrated knife

## Materials

- a variety of breads for sandwich making
- a variety of meats, cheeses, and fresh vegetables
- a variety of sandwich spreads

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 358–366.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1: Teacher-led Activity

1. Facilitate a discussion about sandwiches, their components, and their classifications.
2. Explain the purpose of each ingredient used in sandwich making.
3. Start a sandwich chart (with categories and components) for the class discussion to build on.
4. Have the students list as many sandwiches as they can within each category of sandwich. For example, a simple hot sandwich would be a hamburger.
5. Introduce the components of a sandwich as being the breads, spreads, and fillings.
6. Have the students list as many ingredients as they can in each of the categories. For example, the bread category could include rye, sourdough, whole wheat, and so forth.
7. The students will each create their own sandwich combinations from the list of ingredients created.
8. The students will name and share their sandwich creation with the rest of the class.

### Day 2: Student-led Activity

1. The teacher will have prepared a cold sandwich bar complete with a variety of breads, spreads, and fillings.
2. The students will set up their workstations complete with sanitation and equipment required for sandwich building.
3. The students will create a sandwich of their own choosing using the ingredients supplied.
4. The students will cut their sandwich into four portions and plate for sharing.
5. The students will present their sandwich to the class and describe its classification and the ingredients used.
6. The teacher will use guided questions (see Evaluation Guidelines below).
7. The students will each select four pieces of four different sandwiches to taste.
8. The students will engage in class discussion to compare and contrast the sandwich creations.
9. The students will clean and sanitize their workstations.

## Evaluation Guidelines

Informal assessment on completion of the activity through guided questions.

In a group discussion, students will answer questions while presenting the sandwich that they have created.

Questions for consideration:

- What are two other types of sandwiches that in the same classification as the one you made?
- What are the individual components of your sandwich?
- What type of bread did you choose? Why did you choose that type of bread?
- What type of spread did you choose? What would be an acceptable alternative?
- What type of fillings did you choose? Why do you think that was the best match for your bread?

**If students are not sure of the answer, then group discussion and instructor facilitation are recommended. The objective of the lesson is for the student to gain an understanding of the sandwich-making process.**

## Extension Activities

Students create a restaurant- or deli-style sandwich menu, listing a variety of sandwiches.

Instructors could extend this lesson by involving students in the preparation of the sandwich station (make fillings; slice vegetables, meats, and cheeses; make spreads; slice bread, etc.).



# Oil and Vinegar Dressings—Basic Vinaigrette

## Description

Students will study the procedures, ingredients, and proportions used to produce a basic vinaigrette, and will then make their own using a hand whisk. They will analyze recipes that start with a basic vinaigrette, and identify food safety concerns when making and storing vinaigrette.

## Lesson Objectives

Students will be able to:

- identify a variety of oils and acidic ingredients to create a basic vinaigrette
- indicate the ratios of ingredients in a basic vinaigrette
- identify a variety of flavouring ingredients used in vinaigrette production
- demonstrate the correct procedures for creating oil and vinegar-based dressing
- identify potential food safety concerns when making and storing an oil and vinegar-based dressing, and
- demonstrate correct kitchen safety procedures and techniques.

## Assumptions

- The teacher will be familiar with correct vinaigrette recipe procedures and will use appropriate resources.
- Students have received orientation on the subject of kitchen and food safety.
- Workstation Set-up and Introductory Knife Skills Activity Plans have been successfully previously completed.
- The teacher will demonstrate the dish to be prepared and all students will have a copy of the recipe.
- The teacher will have the flexibility to choose the recipe based on resources, time, and physical space.

## Safety Considerations

Students will practise proper use of personal protective equipment (PPE) at all times.



## Terminology

**acid:** Ingredients with high acid content (pH 0 to 4.0), such as vinegar and citrus juice, do not support the growth of bacteria. Acidic ingredients are typically sour-tasting.

**dressing:** A dressing is a sauce for salads that commonly contains oil and vinegar and that may or may not be emulsified.

**emulsifier:** An emulsifier is an ingredient that is used to stabilize an emulsion; it is an ingredient that enables two normally unmixable ingredients to mix.

**emulsify:** To emulsify is to combine two normally unmixable ingredients to create one solution.

**flavouring:** Flavouring involves the addition of ingredients used to provide a particular taste to food or drink.

**oil:** Oil refers to plant or animal fat used for cooking or in foods such as salad dressings. The viscous liquid coats ingredients and may add richness and flavour to dressings.

**temporary emulsification:** Temporary emulsification refers to an unstable mixture of two normally unmixable ingredients. For example, oil and acid can be combined, but they will separate again when left to rest.

**season:** To season is to enhance and amplify a food's flavour in order to maximize the pleasure of the palate.

## Estimated Time

2 70-minute classes

## Recommended Number of Students

24 or maximum classroom capacity

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

Tools that pertain to the chosen recipe

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 298–317.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

Labensky, Sarah, Alan Hause, and Priscilla Martel. *On Cooking*. 7th Canadian ed. Pearson Canada, 2017.

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1

1. The teacher will introduce the class to the ingredients, methods, techniques, and science behind the preparation of oil and vinegar-based dressings using desired methods and materials.
2. The teacher will give the class a demonstration of the oil and vinegar dressing(s) recipe(s) chosen.

### Day 2

1. Students will use their recipe(s) to create the oil and vinegar-based dressing(s) demonstrated by the teacher. Students may all make the same dish(es) or the teacher may assign various recipes to different groups.
2. As students are making their oil and vinegar-based dressings, the teacher will observe and assist when necessary.
3. As students complete their dish, they will present it to the teacher for both visual and tasting assessment before consuming or packaging their final product for future lab use.

## Evaluation Guidelines

If only teaching about emulsified dressings as theory, a summative assessment will be evaluated on:

- completion of oil and vinegar dressing theory
- oil and vinegar cookery quiz

For the lab, students will be formatively evaluated on:

- positive participation in lab
- observational assessment during the lab
- final product meets outlined and demonstrated standards

## Extension Activities

Students may be given the opportunity to create their own oil and vinegar-based dressing recipe.

Students may be given the opportunity to make their own oil and vinegar-based dressing recipe in the lab.

This Activity Plan can be adapted in the following ways:

- international cooking
- local agriculture
- can be added to other Activity Plans to complete or complement their results
- nutritional information

# Break the Fast

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## Description

Students will discuss the importance of eating breakfast. They will then identify the variety of foods that are commonly eaten for the first meal of the day, as well as their preparation methods: this should include eggs, meats, hot and cold cereals, fruits, etc. Breakfast batters and their uses will also be compared. Finally, students will make a breakfast dish following a teacher demonstration.

## Lesson Objectives

Students will be able to:

- describe the nutritional importance of breakfast
- recognize basic egg cooking methods
- identify various breakfast meats and their cooking methods
- summarize various breakfast batters
- organize a full breakfast plate using any of the demonstrated cooking methods
- construct a dish using any of the demonstrated cooking methods
- identify potential risks and safety concerns, and
- demonstrate correct kitchen safety procedures and techniques.

## Assumptions

- The teacher will be familiar with correct meat cookery procedures and will use appropriate resources.
- Students have received orientation on the subject of kitchen and food safety.
- Workstation Set-up, Introductory Knife Skills, and Cooking Methods Activity Plans have been successfully previously completed.
- The teacher will demonstrate the dish that is to be prepared and all students will have a copy of the recipes that are required.
- The teacher will have the flexibility to choose the recipe based on resources, time, and physical space.

## Safety Considerations

Students will practise proper use of personal protective equipment (PPE) at all times.



## Terminology

**frittata:** A frittata is an Italian egg dish similar in preparation to a quiche but without the pastry. Fillings can include a variety of meats, cheeses, vegetables, and/or seafood.

**omelet:** An omelet is made with beaten eggs that are fried flat and may be folded or rolled into a desired shape. A wide variety of fillings may also be used, including meats, cheeses, vegetables, and/or seafood.

**over-easy eggs:** Cooking eggs over-easy involves flipping a fried egg in order to complete the cooking process. Yolks may be cooked to desired consistency.

**poached eggs:** Poached eggs are cooked by simmering eggs in slightly acidic water until desired doneness is achieved.

**quiche:** A quiche is a savoury open tart crust filled with beaten whole eggs, cream, and seasonings. Additional fillings may include a variety of meats, cheeses, vegetables, and/or seafood. The filled tart is then baked in the oven until set.

**scrambled eggs:** Eggs are scrambled by gently frying whole, beaten eggs until the desired consistency is achieved.

**sunny-side up eggs:** Sunny-side up eggs are cooked by gently frying a whole egg until the desired consistency is achieved. A sunny-side up egg is not flipped over, thus leaving the whites and yolk set but not browned.

## Estimated Time

2–3 70-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- specific kitchen tools that pertain to the chosen recipe (i.e., spatula, whisk, etc.)
- non-stick pans are very helpful for student success

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 606–619.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

Labensky, Sarah, Alan Hause, and Priscilla Martel. *On Cooking*. 7th Canadian ed. Pearson Canada, 2017.

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1

1. The teacher will introduce the class to a number of egg preparation methods (scrambled, poached, over-easy, pan fried, etc.), breakfast meats (bacon, sausage, ham, etc.), hot and cold cereals, and breakfast sides (hash browns, fruit, etc.).
2. This may be done using a teacher-led demonstration or in combination with another lesson or activity led by the teacher.
3. The teacher will provide students with the recipes they will be expected to reproduce in the following class.

### Day 2

1. Students will use their recipes and create the previously demonstrated dish(es), highlighting specific breakfast dishes as per the instructions of the teacher. Students may all make the same dish(es) or the teacher may assign various recipes to different groups.
2. As students are cooking, the teacher will observe and assist when necessary.
3. As students complete the dish, they will present it to the teacher for both visual and tasting assessment before consuming or packaging their final product.

### Day 3

If time and resources permit, students may have the opportunity to create their own breakfast menu and prepare it in future classes.

## Evaluation Guidelines

For the lab, students will receive a formative evaluation based on:

- positive participation in cooking labs
- completion of any cooking methods theory
- observational assessment during the lab, and
- final product meets outlined and demonstrated standards.

## Extension Activities

This activity can be adapted in the following ways:

- international cooking: researching and preparing a variety of breakfast dishes from different cultures
- identifying local agriculture: utilizing fresh, local products when possible
- Aboriginal cooking: researching and preparing traditional aboriginal breakfast items
- nutritional information: exploring the importance of a nutritional breakfast and/or taking a closer look at the nutritional composition of common breakfast foods



# Cooking Meat and Poultry

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## Description

Students will identify and apply the proper procedures for cooking meat and poultry, and the reasons for choosing dry-heat, moist heat, or combination cooking methods. They will be able to identify degree of doneness, internal temperature, and carry-over cooking.

## Lesson Objectives

Students will be able to:

- describe potential risks and safety concerns when cooking meat and poultry
- name the different degrees of doneness
- construct a dish highlighting meat and/or poultry
- identify the cooking method used, and
- demonstrate correct safety procedures and techniques.

## Assumptions

- Students have received orientation on the subject of kitchen and food safety.
- Workstation Set-up and Knife Skills Activity Plans will have been successfully previously completed.
- The teacher will be familiar with correct meat cookery procedures using appropriate resources.
- The teacher has demonstrated the dish to be prepared and all students have a copy of the recipe.
- The teacher will have the flexibility to choose their recipe(s) based on resources, time, and physical space.

## Safety Considerations

Students will practise proper use of personal protective equipment (PPE) at all times.



## Terminology

**carry-over cooking:** Meats and poultry will continue to cook after they are removed from their heat source; this is referred to as *carry-over cooking*. Typically, the internal temperature will rise 5°C during this period.

**collagen:** Collagen is the main structural protein found in soft connective tissues. When collagen is heated to 71°C, it turns into gelatin, which is then dissolved into the liquid, resulting in much more flavour.

**connective tissue:** Connective tissue is the fibrous tissue that surrounds muscles. Some connective tissue can become tender with cooking; other forms such as silver skin cannot and must be removed.

**cutlet:** A cutlet is a portion of meat or poultry that has been breaded and fried.

**elastin:** Elastin is the connective tissue that makes up silver skin and tendons.

**fork test:** *Fork test* refers to inserting a fork into a food to test its resistance. If little resistance is encountered with meat and poultry, then the product is tender and the connective tissues have been broken down or dissolved.

**internal temperature:** Internal temperature refers to the temperature of a cooked food at its core.

**marbling:** Marbling refers to the streaky fat on the inside of a muscle.

**medium rare:** A food is medium rare when it is cooked to an internal temperature of 55°C.

**quality grading:** Quality grading refers to the grade that is put on all meats and poultry based on factors such as their physical appearance, the amount of fat, etc.

**rare:** A food is considered rare when it is cooked to an internal temperature of 50°C.

**resting:** Resting refers to allowing meat and poultry to sit away from any heat source, to allow natural juices to be reabsorbed into the meat before cutting.

**sear:** To sear is the process of caramelizing the outside of meats and poultry before the start of the cooking process.

**silver skin:** Silver skin is white, silvery connective tissue found on various types of muscle.

**steak:** A steak is a portion of meat containing high-quality protein.

**truss:** To truss is the act of tying poultry to encourage even cooking.

**well done:** A food is well done when it is cooked to an internal temperature of 74°C.

## Estimated Time

1–2 70-minute classes

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

Tools that pertain to the chosen recipe

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 510–532.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

Labensky, Sarah, Alan Hause, and Priscilla Martel. *On Cooking*. 7th Canadian ed. Pearson Canada, 2017.

**Canada Beef website (for information and recipes/videos):**

<https://CanadaBeef.ca>

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1

The teacher will introduce the class to a lesson highlighting meat and poultry cookery. This may be done using a teacher-led demonstration or in combination with another activity. The teacher should select only one topic to explain and demonstrate per class.

### Day 2

1. Students will use their recipes and create the demonstrated dish(es) highlighting a specific cooking method as per the instructions of the teacher. Students may all make the same dish(es), or the teacher may assign various recipes to different groups.
2. Continuing lessons must be acknowledged and identified throughout the teacher demonstration and student lab, such as kitchen, food, and knife safety; cooking methods; and knife skills.
3. As students are cooking, the teacher will observe and assist when necessary.
4. As students complete the dish, they will present to the teacher for assessment before consuming or packaging their final product.

## Evaluation Guidelines

If only teaching meat and poultry cookery as theory, a summative and/or formative assessment will be evaluated on meat and poultry cookery theory.

For the lab, students will be formative assessment on:

- positive participation in lab
- observational assessment during the lab, and
- final product meets outlined and demonstrated standards.

## Extension Activities

This activity can be adapted in the following ways:

- International cooking—select and prepare a protein found in a particular culture.
- Aboriginal cooking—cooking bison, wild game.
- Identify local agriculture—use demonstrations and discussions from the BC poultry industry and the Alberta/BC beef industry.
- This activity plan can complement other activity plans through overlap between the use of moist, dry, and combination cooking methods.
- Nutritional information

# Exploring the Culinary Arts—Careers

## Description

Students will analyze current food trends and the different aspects of the food service and hospitality industries, together with the career paths available.

## Lesson Objectives

Students will be able to:

- summarize the different aspects of the service industry
- recognize the factors that affect current food trends and how they affect the food service industry
- summarize the five segments of the hospitality industry, and
- summarize the three key areas of the food service industry (food service, tourism, and science).

## Assumptions

The teacher will become familiar with:

- the hospitality industry and the food service industry, and
- some of the new food trends that have occurred in the last few years (e.g., food trucks).

## Terminology

**cuisine:** *Cuisine* (Fr.) refers to a style or method of cooking that is specific to an area, country, or establishment.

**culinarian:** A culinarian is a person skilled in cookery.

**culinary:** *Culinary* is a descriptive term relating to the kitchen or cooking.

**food service industry:** The food service industry is involved in the making, transporting, and selling of prepared foods.

**hospitality industry:** The accommodations and food and beverage industry groupings.

**tourism:** The business of attracting and serving the needs of people travelling and staying outside their home communities for business and pleasure.

**trend:** In the food service industry, *trend* refers to new methods of preparing or serving food to the public that become popular.



## Estimated Time

1 70-minute class

## Recommended Number of Students

Up to 24

## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

Access to computers

## Materials

- newspaper (classifieds section)
- Internet access

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 414–454.

## Demonstrating Skills And Knowledge

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### Procedure

This Activity Plan will be an introduction to the hospitality and food service industry. The student will examine the various career paths they could take in food service, tourism, and food science.

### A Career in the Food Industry

- This will be a teacher-led discussion. Using a T chart, the class will brainstorm the meaning of hospitality industry and the food service industry.
- The class will explore career opportunities in the classifieds or on the Internet in the three key areas of food service, tourism, and food science.

### Evaluation Guidelines

Students will be assessed based on discussion participation.



# Plating and Presentation

## Description

Discussion will focus on the various considerations and techniques that go into creating an attractive plate or platter: colour, height, shapes, textures, symmetry, garnishes, etc. Students will complete a plating exercise that incorporates these factors.

## Lesson Objectives

Students will be able to:

- describe plating decisions that must be made for an attractive plate or platter presentation
- summarize the importance of appropriate colour, height, proportion, shapes, and textures in plate presentation, and
- design a well-thought-out plate or platter that includes garnishes.

## Assumptions

- The teacher will be familiar with correct plating procedures using appropriate resources.
- The teacher will demonstrate plating concepts and techniques to be followed, and all students will have a resource to reference during the demonstration.
- Teachers will have the flexibility to choose the recipe based on resources, time and physical space.

## Terminology

**asymmetry:** Asymmetry refers to the absence of symmetry.

**focal point:** In plating, the focal point refers to the main point of interest in a dish's presentation.

**garnish:** To garnish is to decorate a plate or dish to make it more visually appealing.

***mise en place:*** *Mise en place* (Fr.) refers to all of the preparation needed to cook a dish.

**symmetry:** Symmetry in plating refers to visual balance, where one side of a plate mirrors the other.

## Estimated Time

1–2 70-minute classes

## Recommended Number of Students

Up to 24



## Facilities

Home Economics teaching lab and/or Culinary Arts teaching kitchen

## Tools

- blank paper
- scissors
- coloured pencils

## Resources

Draz, John, and Christopher Koetke. *The Culinary Professional*. 3rd ed. Goodheart-Willcox, 2017. Pages 96–218.

Gisslen, Wayne. *Professional Cooking for Canadian Chefs*. 8th ed. John Wiley & Sons, Inc., 2014. Hoboken, New Jersey.

Labensky, Sarah, Alan Hause, and Priscilla Martel. *On Cooking*. 7th Canadian ed. Pearson Canada, 2017.

# Demonstrating Skills And Knowledge

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## Procedure

### Day 1

The teacher will introduce the class to the ingredients, methods, and techniques needed to thoughtfully create an attractive plate or platter. Emphasis should be placed on plating basics such as:

1. Rim of a plate stays immaculate—no fingerprints, wipe marks, drips, or garnishes.
2. Garnishes are attractive, relevant, and enhance rather than overpower the main idea of the plate.
3. All garnishes should be edible and reflect ingredients that are already being used in the dish.
4. Soup bowl is not over- or under-filled.
5. Main course or salad plate shows portion control, and there is no white or negative space visible.
6. Nutritional guidelines on entrée plate are encouraged using the ratio of 50% assortment of vegetables, 25% starch, 25% protein.
7. Using odd-number focal points (e.g., three cherry tomatoes on a plate rather than four).

### Day 2

The teacher may also choose to demonstrate some of these techniques as well as common mistakes using products available in the kitchen or pictures found in textbooks and/or online.

1. Students will be provided with plain white paper, scissors, and coloured pencils and instructed to conceptualize and create a well thought out plate or presentation.
2. Students will label ingredients as well as colour ingredients appropriately to showcase the concept.
3. Creativity is encouraged; students may cut out shapes to showcase plates or food.
4. The completed project may be presented to the class and/or handed in for assessment.

## Evaluation Guidelines

Students will receive a formative assessment evaluated on:

- completion of the project
- demonstrated plating criteria are met
- colour and visual appeal
- easily understandable labelling, effective execution of concept, and
- all standards prescribed during teacher demonstration are met in the final product.

Participation and enthusiasm are crucial. Risk taking and exploration should be encouraged; this activity should be fun. Marking should be very objective. Any critique should be based on professional-level criteria.

### **Extension Activities**

This activity may be done early in the course module or left until the end. If completed early in the course, plating and presentation may be a continuing outcome for every cooking lab.