

SITHFAB005

Prepare and serve espresso coffee

CONTEMPORARY

DYNAMIC AND EXCITING

HOSPITALITY

ENTER THE VIBRANT WORLD OF HOSPITALITY

LEARNER GUIDE

SITHFAB005

Prepare and serve espresso coffee

Release 1

Learner guide

Aspire Version 1.1

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Before you begin

This learner guide is based on the unit of competency *SITHFAB005 Prepare and serve espresso coffee*, Release 1. Your trainer or training organisation must give you information about this unit of competency as part of your training program. You can access the unit of competency and assessment requirements at: www.training.gov.au.

How to work through this learner guide

Your trainer will advise which parts of the learner guide you need to read, and which activities you need to complete. This learner guide will help you in your training.

Icon	Feature	How you can use each feature
	Learning content	Read each topic. Speak to your trainer if you need help.
	Activities	Activities give you the opportunity to put your skills and knowledge into action. Your trainer will tell you which activities to complete.
	Video clips	Where you see a QR code, you can use a smartphone or tablet to access video clips about the content. For information about how to download an app that will read the QR code, or for more help, visit our website: www.aspirelr.com.au/help
	Workplace examples	Workplace examples at the end of each topic show how your learning applies in practice.
	Summaries	Key learning points are provided at the end of each topic.



Introduction | Prepare and serve espresso coffee

When working in the hospitality industry, you will need to know how to make and serve coffee to customers. This can occur in a variety of different hospitality organisations that serve espresso coffee beverages, including cafes, restaurants, bars, clubs and function venues.

What you will learn

In this learner guide, you will learn about how to extract and serve espresso coffee beverages using commercial espresso machines and grinders.

You will learn how to:

- advise customers about coffee beverages
- select and grind coffee beans
- prepare and assess espresso coffee beverages
- use, maintain and clean espresso machines and grinders.

In addition, this learner guide will help you understand:

- the types and characteristics of coffee and milk, and how to advise the customer
- preparing equipment, ingredients and the machines for service
- the steps needed to make various quality coffee beverages
- maintaining and cleaning equipment.



Topic 1 | Make coffee for customers

Australians have embraced the espresso method of extracting coffee and there has been an enormous growth in the number of venues that serve coffee. In addition, customers' knowledge of and preferences for coffee have become more sophisticated.

As a barista, you need to be able to offer advice and assist customers in their selection of coffee. To do this, you need to ask the customer questions that will determine their requirements and preferences for different types of espresso coffee, milk and other options.

In this topic you will learn about:

1A Types and characteristics of coffee

1B Types and characteristics of milk

1C Advising the customer

1A

Types and characteristics of coffee

A good barista has a solid understanding and knowledge base of every aspect of the coffee-making process.

This includes how different beans, blends and roasts can alter the flavour and characteristics of coffee. With this information, you can confidently provide expert advice and suggestions to customers.

The customer should leave feeling like they were offered choices in determining the style and characteristic of their coffee. Customers are more likely to return if they received this type of service from a barista.

History of coffee

Coffee is one of the most consumed beverages in the world.

Coffee is said to have first been discovered in Ethiopia during the 9th century.

Coffee crops are found in many countries around the world including Indonesia, Vietnam, Mexico, India and the West Indies, and coffee is farmed extensively throughout South America, particularly in Brazil.

Coffee has a strong history in Europe. The first coffee shop was opened in Venice, Italy in the early 1600s. From here the popularity of coffee spread to the rest of Europe.

Coffee arrived in Australia from Europe largely as a result of Italian immigration. Italians wanted to continue their coffee culture and enjoy their favourite beverage.

Part of the appeal of coffee has always been the effects of caffeine and its stimulating effect on the human body.

Watch this video [00m:51s] to learn about the history of coffee.



Characteristics of beans, blends and roasts

As a barista, it's important to know about the characteristics of beans, blends and roasts.

Theo is an apprentice. Fiona is a barista. Today she is teaching Theo about the characteristics of beans, blends and roasts. Theo has some questions for Fiona.

Read Theo's questions about the characteristics of beans, blends and roasts and Fiona's responses.

Theo



What can you tell me about different types of beans?

Fiona



The environmental conditions and location will affect the characteristics of the coffee. Coffee plants grow best in rainforest conditions, such as warm areas with high rainfall. The soil needs to be well-drained. Volcanic soils actually provide the best growing conditions.

There will be also be distinctions in the taste of coffee based on the varieties (genetic subspecies) of the two main bean species, and the processing they undergo, such as roasting and blending.

In Australia we rely on the two major types of single-origin beans: Arabica and Robusta.

Here is a summary of the Arabica and Robusta beans.

Arabica beans:

- have a long and uneven shape, and grow on trees
- have a low caffeine content
- have a sharp, acidic, full-bodied flavour
- have an aromatic smell
- are used for premium coffee
- are the most popular grown variety.

Robusta beans:

- have a small, round shape and grow on shrubs or vines
- have a high caffeine content
- have a strong character and a chocolate flavour
- are considered an inferior bean (for example, they are more commonly used in instant coffee).



I know that processing is done to turn the green coffee bean into a product that can be used for drinking. What else do I need to know about processing?



That's right. Processing the cherries from the plant can be done in two ways, either by dry processing or wet processing. The purpose of processing is to remove the hull and to de-husk the coffee bean. The beans are then graded and sorted (and perhaps blended) before roasting.

Let me give you an overview of both processes.

Dry processing requires a large area for beans to be spread out and dry in the hot sun. The process is labour-intensive because the beans must be raked and moved around to ensure they dry evenly. This can take up to four weeks. The skin and pulp are removed when dry.

During wet processing, the beans are soaked to remove the pulp and skin. This can be done by hand or by machine. The cherries float, and the waste is sieved away from the beans and removed. The beans are then allowed to dry.



You mentioned blended coffee before. What does that mean?



Blending coffee beans is done to create a coffee with an improved or more complex flavour. For example, a blend could be done by adding a low percentage (20–30 per cent) Robusta beans from India (which produce a strong flavour without bitterness) to a better quality Arabica bean. This will boost the overall character and flavour of the coffee.

The blending process may occur before or after the roasting process. A common blend is a mixture of four different bean types. The percentage of each bean in the blend will create different flavours and complexities.



What about roasting the beans?



After processing, the beans need to be roasted to bring out the characteristics of the coffee bean flavour.

Roasting coffee is a skill. It requires the correct amount of heat for a specific period of time. The temperatures are very high, so the beans are roasted in a short amount of time. The beans move and stir in the machine as they are roasted to allow the hot air to roast them evenly.

The length of time and temperature used will determine if the beans are light, medium or dark roast. To an expert roaster, the smell, cracking noises and colour changes all indicate the stage of the roasting process.

A roast profile is a graph that shows bean temperature during a roast cycle. It is best if both the bean and air temperature are measured and logged.

A roast profile is used to adjust for faster, higher temperature roasts or a slower roast on a lower temperature. This will alter the characteristics of the coffee. For example, it may bring out the body of the coffee bean, but reduce the flavour.

The beans are cooled quickly to stop the roasting process.

Here are the characteristics of three roasting types:

- a light roast emphasises the acidity of the coffee
- a medium roast develops sweetness
- a dark roast brings out the intensity of the aroma or flavour.

Watch this video [04m:49s] about roasting beans.



Types of espresso coffee

Espresso coffee originated in Italy, but newer styles are being introduced from other countries, including Australia.

Each type of coffee beverage has its particular characteristics. There is also a variety of serveware (such as glasses or cups) suitable for different styles of espresso-based coffee.

In order to understand a coffee order and present it in the correct serveware, you need to have the knowledge and skills to make each of the following types of espresso coffees.

Ristretto



Serving details

- Demitasse (small cup or glass)

Characteristics

- 15–20ml of espresso extracted in 10–15 seconds
- Extra strong, dense espresso

Mocha/mochaccino



Serving details

- Coffee cup or mug

Characteristics

- 30ml (1/3) espresso
- 1/3 hot milk
- 1/3 foam
- 1 tablespoon of cocoa or chocolate syrup
- Can have sprinkled chocolate powder

Espresso/short black



Serving details

- Demitasse (small glass or cup)

Characteristics

- 30–35ml of espresso
- No milk
- Strong
- Thick, honey-coloured crema

Long black



Serving details

- Usually a coffee cup

Characteristics

- 30ml (1/3) espresso
- 60ml (2/3) hot water
- Not as strong as an espresso
- Thick, honey-coloured crema

Piccolo latte (small latte)



Serving details

- Demitasse (small cup or glass)

Characteristics

- 15–20ml of espresso topped with warm foamed milk

Flat white



Serving details

- Coffee cup or mug

Characteristics

- 30ml (1/3) espresso
- 60ml (2/3) hot milk
- Milk is not foamed

Cappuccino



Serving details

- Coffee cup or mug

Characteristics

- 30ml (1/3) espresso
- 1/3 hot milk
- 1/3 foam
- Foam has a dense foam cap
- Can have sprinkled chocolate powder
- Mug cappuccino is double (60ml) espresso coffee topped with foam

Latte



Serving details

- Usually a glass

Characteristics

- 30ml (1/3) espresso
- 60ml (2/3) hot milk
- Foam is about 10mm thick
- The milk should not be too hot – glass can be held in the hand without burning

Short and long macchiato



Serving details

- Demitasse (small cup or glass) or long cup or glass

Characteristics

- 30ml espresso coffee 'stained' with a dash of milk or foam
- Customers can add their own milk
- Long macchiato is double (60ml) espresso coffee with a dash of milk or foam



Activity 1: Types and characteristics of coffee

Check your understanding of the types and characteristics of coffee.

Read each question and circle the correct response (yes or no).

Question 1 Which are types of espresso coffee beverages that contain milk?

- | | | |
|-------------------|------------------------------|-----------------------------|
| a. Espresso | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b. Cappuccino | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c. Long macchiato | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d. Ristretto | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Question 2 Which of the following statements correctly describe types of beans?

- | | | |
|---|------------------------------|-----------------------------|
| a. Arabica beans are used for premium coffee. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b. Robusta beans are high in caffeine. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c. Robusta beans are the most popular grown variety. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d. Arabica beans have sharp, acidic, full-bodied flavour. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Question 3 Which statements describe dry processing?

- | | | |
|--|------------------------------|-----------------------------|
| a. The beans are soaked to remove the pulp and skin. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b. Requires a large area for beans to be spread out to dry in a hot sun. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c. The process is labour-intensive. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d. Can take up to four weeks. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Question 4 Which statements describe roasting?

- | | | |
|--|------------------------------|-----------------------------|
| a. It requires the correct amount of heat for a specific period of time. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b. Expert roasters don't need to consider the smell, cracking noises and colour changes. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c. Time and temperature will determine if the beans are light, medium or dark roast. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d. The beans are still in the machine as they are roasted to an even texture. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Click to
complete
Activity 1

1B

Types and characteristics of milk

Cow's milk is the most popular choice for customers. However, there are now different variations and alternatives to cow's milk, including almond and soy milk.



Each type of milk has a noticeable difference in taste and texture, which affects the body of the coffee.

Some customers will have a specific request for a type of milk, while others may want some advice on the options. You will need to be able to provide information so the customer can make their decision. You also need to take several factors into consideration on how the choice of milk can affect the coffee beverage.

Choice of milk can affect:

- the taste of the coffee beverage
- the texture of the foam
- the consistency of the foam
- the amount of foam required for the type of coffee.

Characteristics of milk types

Each type of milk will have different characteristics. You need to be aware of these when making coffee beverages.

Here are the characteristics of some common types of milk used in coffee.

Whole or full-cream milk

- Whole/full-cream milk is the most common type of milk used for coffee beverages. It usually contains 3.5–4 per cent fat.
- The amount of fat supports a good balance of flavour, microfoam texture and strong consistency of the foam.
- Full-cream milk will take slightly longer to steam and froth than other milk products because of its higher fat content. Coffee mixed with full-cream milk tends to have a fuller body and a sweeter taste.

Low-fat milk

- Low-fat milk has slightly more protein than full-cream milk but has 1–2 per cent less fat than full-cream milk.
- It produces a similar quality and consistency microfoam to full-cream milk, but takes less time to steam.
- There is not a significant difference in taste and texture when using low-fat milk compared with full-cream milk, but the beverage has less body.

Skim milk

- Skim milk has little or no fat and gives a larger volume and more dense foam than any other type of milk.
- When steamed, skim milk tastes sweeter than other types of milk.
- It is not as flavourful and has less body than full-cream milk.

Lactose-free milk

- Lactose-free milk is designed for people with lactose intolerance. It is suitable for use in espresso coffee drinks as it textures well to a creamy finish.
- Lactose is a naturally occurring sugar found in dairy foods. It is normally broken down or digested by the body using an enzyme called lactase. This milk is suitable for those who cannot easily digest lactose.

Soy milk

- Soy milk is also lactose-free and therefore suitable to drink by people who are lactose intolerant.
- Many people choose to drink soy milk due to their taste preferences or because they do not consume animal products.
- Soy milk textures well when foamed and produces a smooth, creamy texture.

Almond milk

- Almond milk is made by crushing almonds, collecting the fluid and straining the waste. This type of product is a choice for vegans and people with lactose intolerance.
- Almond milk is 50 per cent lower in kilojoules than cow's milk, making it an alternative for people who want a less sweet milk substitute. It also contains no cholesterol.
- Coffee beverages can be made the same way using almond milk, but the solids will precipitate quickly (though you can stir them back in).

Enhanced cafe milk

- This is full-cream milk marketed for coffee foaming.
- It is guaranteed to produce a thick and creamy foam because it has been enhanced with milk protein.

Milk in coffee beverages

Milk is used in a variety of coffee beverages, including latte, cappuccino, mochaccino, flat white and piccolo latte. Milk is also used in iced coffee beverages.

When using milk in a coffee beverage, the general rule is that the colder the temperature, the better the milk foam. This is mostly due to the fact that you have more time to work on it when you are texturing milk for coffee beverages.

Milk foams best when it is below 40°C because the milk is denser in structure at this temperature. If the foaming technique is correct, the foam can be developed in the time it takes for it to reach the correct heat.

Watch this video [00m:40s] to learn about the different ways milk is used in coffee beverages.





Activity 2: Types and characteristics of milk

Check your understanding of types and characteristics of milk.

Read each statement about types and characteristics of milk and circle true or false.

Question 1 The best temperature for milk to be heated is 40°C and under.

* True

* False

Question 2 A customer who is lactose-intolerant orders a takeaway cappuccino. She could have either enhanced milk or skinny milk.

* True

* False

Question 3 Whole or full-cream milk is the most commonly used milk in coffee beverages.

* True

* False

Question 4 The choice of milk can affect the taste and texture of the foam.

* True

* False

Question 5 Skim milk and low-fat milk are the same. They just have different names.

* True

* False

Click to
complete
Activity 2

1C | Advising the customer

Your product knowledge of the variety of coffees on offer will help you to assist customers.

While regular customers will know what they want, some customers will need some guidance and assistance in their selection. You must be prepared to clearly explain the choices available. You may refer to the beverage menu (either on the wall or in a printed menu) to indicate and explain the options. The customer must be able to see the prices of the coffee and how prices vary according to different coffee choices (for example, there may be an extra charge for soy or almond milk).

Listening carefully and asking probing questions are important skills for determining customers' preferences. Once the customer has made their selection, you may need to write the coffee order and any other requests (such as food orders) in preparation for making the coffee.



Provide information to customers

Taste preferences will change from one customer to another and can change over time for the same customer.

Some customers will require some time to make a choice, while others may have a request that may not be technically correct. For example, a customer may request a very hot latte in a glass when the recommendations are not to make it too hot so it can be held in a glass. Additionally, over-heated milk will affect the flavour. Always remember that you are providing a service. As a barista offering a service, you should offer your advice and accept all requests.

A barista should be able to:

- suggest beverage varieties
- have knowledge of menu items
- serve customers efficiently and effectively.

Identify customer preferences

There are many ways you can help customers to identify their preferences.

In order to identify a customer's preference for their coffee beverage order, there are several questions that the barista can ask the customer.

Julie is a trainee. She has some questions for her trainer, Bill, who is a barista.

Julie



Bill, if a customer says they want a strong or weak coffee, what do I do?

Bill



Well, coffee can be made strong or weak by adjusting the shot of espresso. A coffee extracted correctly to standard (30–35ml in 27–32 seconds) will automatically be a strong coffee.

But if your customer wants a weak coffee, then the extraction should be 15–20ml over the same amount of time. Then milk and/or hot water can be added to taste.



I started my training in a cafe that had in-house and takeaway services. But I wasn't ever clear about how to serve the coffee orders – especially for takeaway coffees.



If the coffee will be consumed in house, the serveware will be determined by the type of coffee order. For example, a latte is usually served in a glass and a cappuccino is usually served in a cup with a saucer.

If a takeaway coffee is ordered, you should ask them what size of coffee they want (for example, small, medium or large). This will determine which takeaway cup you will use. You should also ask whether they want sugar in their coffee.



I have noticed that customers have pretty clear preferences when it comes to milk and sugar!



That is true! Sugar comes in various forms and packaging. It can be brown, raw, white, cube, crystal, table and even liquid. There are also artificial sweeteners (such as saccharine), which are suitable for customers with diabetes. Not all venues offer a complete range of sugar varieties, but most offer white or brown sugar and artificial sweeteners.

With milk, there is more variety. Most venues stock full-cream milk, low-fat milk and lactose-free alternatives, such as soy. In addition to selecting milk, a customer may request for their milk to be extra hot or cold, or for a small jug of milk on the side of their coffee order. These are all common customer requests.



Why would a customer order a decaffeinated coffee?



Decaffeinated coffee (or decaf), is coffee from coffee beans that have had at least 97 per cent of their caffeine removed. People who enjoy drinking coffee but want to limit their caffeine intake are likely to request a decaffeinated coffee.

It is becoming more a popular request, particularly in the afternoon. Decaffeinated coffee is made the same way as all other coffees you make.



What's a good accompaniment to coffee?



Sugar can be an accompaniment. It might be served on the side with a coffee or incorporated when the coffee is made.

Some venues will offer customers an additional accompaniment such as a small biscuit, chocolate or marshmallow with their coffee. It is a good idea to ask the customer if they would like the additional item.

Take customer orders

With so many customer variations possible, it's important to listen to the customers when they place their order.



The barista must be able to understand what the customer has ordered and translate this into a finished coffee product. Orders from a customer may be abbreviated or slightly altered from a standard order. For example:

- skinny mocha, one sugar, regular size
- soy cap, no chocolate, in a mug.

You may need to write the order down on a docket or enter it into a computer or portable device, such as a tablet. Orders may be taken at a table or at the counter with a cash register. Many software systems print dockets with the order that you can refer to when making the coffee.

To ensure accuracy of orders, you might like to repeat the order back to the customer to confirm it is correct.



Activity 3: Advise the customer

Check your understanding of advising the customer.

Question 1 Draw a line from the beginning of the sentence to match the end of the sentence on the right.

- * Most venues stock
- * If a takeaway coffee is ordered, the barista needs to
- * A barista must
- * Customer preferences include
- * be able to suggest a range of coffee varieties to the customer at any time.
- * coffee strength, sugar and milk.
- * ask the customer their preferred size.
- * full-cream milk, low-fat milk and lactose-free alternatives, such as soy.

Click to
complete
Activity 3



Read the following workplace example to see how the concepts you have learned are applied in a real-life situation.

Workplace example for Topic 1

Cody has been a barista at Maples Cafe for a year, a busy coffee shop near the railway station. As they are located near the railway station, they have a busy passing trade on takeaway coffees, which is often busiest in the mornings with customers purchasing coffee on their way to work.

Cody prides himself on his excellent knowledge of all things coffee. He has a good understanding of the coffee beverage selections and feels well placed to advise his customers on the products available.

Maria is a customer, and approaches Cody while he is at the espresso machine. Maria says she feels like a different sort of coffee today instead of her usual cappuccino. However, Maria says she thinks a black coffee would be too strong. She asks Cody what he would recommend. Rather than just suggest another type of coffee, Cody asks Maria the following questions:

- Does she enjoy her coffee strong or weak?
- Would she like the milk to be full-cream or skinny?

At this point, Maria explains that milk has been upsetting her stomach lately, so Cody suggests using an alternative, such as soy. Cody suggests a soy latte and asks if Maria would like sugar in the coffee before he puts the takeaway lid on for her.

Cody makes Maria's coffee quickly as he knows she is on her way to work and needs to catch the train. Cody ensures that he does not overfill the latte and places a clean lid on the coffee to ensure there are no drips or spills. Cody wishes Maria a good day and makes a mental note to ask her how she enjoyed this alternative coffee next time he sees her.

Watch the workplace example video [01m:44s] [here](#).





Summary of Topic 1

1. In Australia we rely on the two major types of single-origin beans: Arabica and Robusta.
2. Processing the cherries from the coffee plant can be done in two ways: either dry processing or wet processing.
3. Roasting is a skill that requires the correct amount of heat to be used for a certain period of time.
4. The percentage of each bean in the blend can create different flavours and complexities.
5. When it comes to the type of milk used, you should take into consideration some important factors when making coffee beverages.
6. Common types of milk used in coffee include:
 - whole/full-cream milk
 - low-fat milk
 - skim milk
 - lactose-free milk
 - soy milk
 - enhanced cafe milk.
7. Your product knowledge will enable you to assist customers in their selection of the coffee varieties from the beverage menu.
8. Some customers require some time to make a choice, while others may have a request that may not be technically correct.
9. The barista must be able to understand what the customer has ordered and translate this into a finished coffee product.
10. It is good practice to repeat the order back to the customer to confirm the order is correct.



Topic 2 | Prepare equipment

Preparing and checking equipment is performed before service to ensure the safe and smooth running of the coffee station.

Setting up the equipment, ingredients and serviceware ahead of time means that all the items required are accounted for and checked.

As a barista, you should be familiar with the workings and features of the equipment you use, and should always check the machine's operation before service. To do this, you should make several test extractions to determine the quality of the coffee and make the required adjustments.

In this topic you will learn about:

2A Mise en place

2B Storage and shelf life of ingredients

2C Espresso machines and grinders

2A | Mise en place

In many venues that serve coffee, the customer can see how the coffee is prepared and served.

Because the workstation is often in view of customers, it needs to be organised, clean and tidy with a clear work area.

Maintaining cleanliness requires washing, rinsing and wiping down the area continually throughout service. Customers want to see an efficient, well-organised space, where the barista uses the espresso machine and grinder with confidence and speed.

Julie is an apprentice. She has some questions for her trainer, Bill, who is a barista.

Read Julie's questions about mise en place and Bill's responses.

Julie



Hi Bill, can you explain what is meant by 'mise en place'?

Bill



Sure! Mise en place is a French term that means 'set in place'.

It means taking the time to prepare and organise the ingredients, equipment and serveware. You should ensure everything is placed in a position that is convenient and accessible.

This saves time because everything required is set out around the coffee station where it can be easily located.

Mise en place also includes turning on and checking the espresso machine and preparing the grinder. The serveware is placed on top of the machine so it will be warm and ready for service.

Put simply, mise en place means not having to search for ingredients or equipment, which can delay service and force you to leave the coffee station.

Watch this video [00m:41s] to learn about mise en place.





OK. Thanks. What can you tell me about equipment for mise en place?



Well, as I mentioned, the equipment needs to be placed within easy reach to enable an efficient workflow.

Most businesses will have an established routine and workplace procedure for mise en place. You will need to follow the procedures that have already been tried and tested.

Mise en place is always done ahead of service, so that machines and equipment have been checked for cleanliness, and to confirm they are ready to operate.

Here's a run-down of equipment for mise en place.

- Workstation equipment, including:
 - commercial-grade espresso machine
 - coffee grinders loaded with beans
 - knock boxes for used coffee grounds
 - filter baskets, including a blind or blank basket
 - cleaning brushes and cloths
 - flat edge implements for levelling off filter baskets
 - milk foaming jugs of various sizes
 - tamp mats and tampers.
- Measuring equipment, such as:
 - scales for weighing coffee
 - thermometers.
- Serviceware, which may include:
 - cups and saucers: espresso cups, standard cups and mugs
 - glasses: demitasse (small glasses) and regular glasses
 - takeaway cups and lids (paper or plastic)
 - service and takeaway trays.
- Other equipment, including:
 - rubbish bins
 - powder shakers.



OK, so you've told me about all the equipment. What about ingredients for mise en place?



Mise en place requires you to consider the ingredients you will need for service.

To do this, you'll need to estimate adequate supplies so they are at hand. The ingredients required for coffee service are more than just coffee beans and various types of milk. There may be many other items and accompaniments.

Of course, perishable items like milk and chocolates must be kept refrigerated. They must be covered or stored in a lidded container in a fridge. Some items like chocolate powder or syrups can be stored in clean, airtight containers.

Ingredients for mise en place you should consider include:

- coffee beans
- ground coffee
- decaffeinated coffee
- types of milk, including full-cream, low-fat and soy milk
- sugar and artificial sweeteners
- chocolate syrup or chocolate powder
- accompaniments, such as marshmallows, small biscuits and chocolates.



What should I consider for a pre-service checklist?



You should be able to serve a quality coffee to the very first customer. To do this, you have a number of things to consider.

When you arrive at work, the first thing you may need to do is to turn on the espresso machine. The machine will need some time to get the water to the correct temperature and pressure. The machine needs monitoring because the correct operation will affect the ability to make coffee. Sometimes machines are left on permanently, but this will depend on the individual business.

Ensuring you have a good set-up practice may mean following a checklist. The role of the barista is to ensure this occurs at each shift or service period.

A pre-service checklist may include:

- Follow the checklist to ensure the equipment and serveware is checked before service begins.
- Ensure the water taps are turned on before turning on the espresso machine.
- Monitor the espresso machine to ensure it is heating and that the water pressure is rising.
- Prepare the grinder with fresh coffee beans.
- Ensure you have adequate quantities of ingredients for the service period.



Activity 4: Mise en place

Read what each trainee says about mise en place and circle either true or false.

Question 1 Mise en place saves time cleaning at the end of service.



* True

* False

Question 2 Mise en place means be the first one at work to open up.



* True

* False

Question 3 A checklist of tasks for the set-up of service ensures nothing is missed and that everything is ready.



* True

* False

Click to
complete
Activity 4

2B | Storage and shelf life of ingredients

Keep coffee, milk and other ingredients in the correct storage conditions.

This will help to maintain their quality so they are more likely to last for their recommended shelf life. Milk is particularly prone to spoiling, so must be kept cold and used within its use-by date. Personal hygiene, including correct hand-washing techniques and wearing the correct uniform, should be standard practice when handling food.

Remember, choosing the correct storage conditions will help to maintain the quality and shelf life of coffee.



Lea

It sounds basic, but it is important that you understand storage conditions for coffee. Coffee beans are 'hygroscopic', which means they are absorbent. Some people recommend that coffee beans be stored in the refrigerator or freezer. Beans will absorb the odours and moisture of other items if not stored correctly. If coffee beans are taken from a cold environment into a warm environment, condensation may form on the beans, which will speed up their deterioration.



Cody

Another storage condition to consider for coffee is that excess coffee beans can be frozen. This excess may occur as a result of over-ordering or a reduction in coffee consumption during slow periods. There is no science to support the fact that coffee quality will be reduced if frozen. However, it is important that coffee beans be allowed to slowly reach room temperature to reduce the chance of the coffee 'sweating'.



Isa

Optimising the shelf life of coffee avoids wastage and ensures the freshest coffee is used. Roasted beans come with a roast date or code, which indicates when the coffee was roasted. Coffee beans are perishable, so they must be stored correctly when not in use. Coffee beans are generally at their optimum from two to 21 days after roasting. After this time, a slow deterioration will begin. Many companies place a 12-month use-by date on their roasted packaged coffee beans. Dates on products are used to rotate produce to make sure it is fresh and that the oldest is used first. This is known as first in, first out (FIFO).



George

When coffee is roasted, carbon dioxide develops in the beans and is emitted (given off) for several hours afterwards. Coffee beans are sometimes sealed in aluminium bags with a one-way valve, which allows the carbon dioxide to get out, but no oxygen to get in.

Exposing the coffee to oxygen speeds up the deterioration process, which makes it go stale faster. The aluminium bag protects the coffee from ultraviolet light, which also speeds up deterioration.

Being aware of these factors will help you to optimise the shelf life of your coffee.

To optimise the shelf life of beans:

- Store in a cool, dry place.
- Remove as much air as possible from containers or bags.
- Seal bags with a clip or elastic band, or use a suitable airtight container.
- Store in aluminium bags with a one-way valve.
- Coffee grinders that hold beans should be kept out of direct sunlight.



Fiona

When storing dry goods, you must consider other accompaniments such as sugar, artificial sweeteners, chocolate powder, syrups and marshmallows. These should also be stored in dry store conditions.

Dry store conditions include:

- between 18–21°C
- well-ventilated and dry
- shelving off the floor and away from the walls
- pest-free
- stock rotation principles are applied, such as FIFO
- sealed air-tight containers with labels indicating the use-by date.

Storage conditions for milk

Milk is stored between 0–5°C away from strong odours, such as onion or garlic.

The use-by dates on milk labels should be used to rotate stock so that milk past its use-by date is discarded and the oldest milk is used first.

Milk must be stored under refrigeration and kept under 5°C. Any temperature over this is considered in the 'danger zone' and will result in fast deterioration of milk. Milk will spoil quickly if it is kept out of the fridge for even short periods of time, particularly on hot days. A sour smell indicates the milk has spoiled and should be discarded.



Food safety

All food premises must follow the national food safety standards and legislation.

Maintaining an acceptable level of hygiene requires you to follow certain procedures and policies for handling, storing and preparing food. This includes following personal hygiene practices, such as hand washing.

It is management's responsibility to make sure that staff comply with and maintain good hygiene practices. This usually means implementing some initial training in the workplace or more formal food-handling training that may be undertaken off site.



Food safety checklist

- Follow personal hygiene practices, such as hand washing.
- Wear a uniform, which may include protective clothing, such as an apron.
- Clean equipment and surfaces where food is being prepared.
- Ensure food is stored correctly in sealed containers and/or in a refrigerator.
- Ensure rodents such as mice cannot access the food.
- Ensure correct handling and storage of rubbish.
- Clean and sanitise machines and equipment, if applicable.
- Use cleaning cloths and materials to avoid contamination.
- Ensure safe handling of dirty linen and laundry; for example, place dirty tea towels in a lined basket.

For further information about food safety, you can refer to www.foodstandards.gov.au.



Activity 5: Storage and shelf life of ingredients

Check your understanding of storage and shelf life of ingredients by answering the following questions.

Question 1 Which of the following are conditions for dry storage? Tick all that apply.

- Store food between 18–21°C.
- Store food between 0–5°C.
- Dry storage is a space where condensation can develop.
- Use aluminium bags for coffee with a one-way valve.
- Sealed airtight containers with labels indicate the use-by date.
- Store food in freezers or refrigerators.

Question 2 Circle the correct answer. Milk must be stored in the refrigerator and at 0–5°C to prevent it from spoiling.

* True

* False

Question 3 List **three** ways to optimise the shelf life of coffee beans.

Question 4 Which of the following sentences apply to food safety? Tick all that apply.

- Wash hands after using a nasal tissue.
- Wear protective clothing, such as an apron.
- Clean the coffee equipment weekly.
- Remove rubbish bins after service.
- Sanitise the coffee grinder.
- Place dirty tea towels in a lined basket.

Click to
complete
Activity 5

2C

Espresso machines and grinders

The espresso machine and the coffee grinder are the most important pieces of equipment.

The make and size of espresso machines may vary across different coffee stations. Each machine will have particular features and functions that the barista needs to learn. The manufacturer's instructions will outline the features of each component of the machines.

Some espresso and grinder machines can be manual lever operated, some are semi-automatic and some have fully automated abilities, such as grinding, dosing, tamping and discarding the used grounds.



Features of espresso machines

The espresso machine is the centre of the coffee station.

Espresso machines consist of a hot water boiler with outlets controlled by a water pump and heat exchanger. Gauges on the machine identify pump pressure and water temperature. The manufacturer's instructions will explain the workings, usually with diagrams.

Manual or automatic switches determine the amount of water that flows through the outlets (called group heads). The machines can be programmed to allow only a certain amount of water to flow through, or they can be set to allow for a free pour. This allows you to manually turn the water on and off.



Here is some information about parts of espresso machines.

Feature	Function
Group heads	The water outlets are referred to as group heads. Most commercial machines have a two- or three-group head capacity. Water is pumped under pressure through a series of screens into the group handle. The water in the group head is around 92°C at 9 bars of pressure. The pressure gauge tells you the operating pressure of the machine.
Group handle	<p>The group handle (also called the portafilter) holds the tamped ground coffee. The high-pressure water flows through the group handle and produces the espresso. It may have a single spout (for one coffee extraction) or a double spout (for two coffee extractions).</p> <p>Filter baskets are round metal baskets that sit firmly inside each group handle. They allow the espresso liquid to pass through the group handle into the cup without any coffee grounds. The larger holed filter basket is used for the double-spout group handle and a finer basket is used for the single-spout handle. The blind filter (with no holes) is used to clean the group head. This is called 'flushing'. During flushing, hot water is forced up into the group head and any coffee particles are removed.</p>
Selection buttons	These turn the water pump on and off to deliver hot water through the group head. The controls can be programmed to deliver specific amounts of water for different coffees. There is also a free pour button where the operator can manually turn the water on and off.

Feature	Function
Steam valve	The steam valve can be opened and closed to deliver the dry steam into the steam wand.
Steam wand	<p>The steam wand is an outlet controlled by the water pump. The steam wand is the pipe that dispenses dry steam under high pressure. This is used for heating and texturing (foaming) milk.</p> <p>The steam wand has an aerated nozzle with three–five holes. This must be kept clear (purged with hot steam) to ensure no milk residue builds up when texturing milk. There is a dial or switch for turning the steam wand on and off. Always point the nozzle backwards when purging to prevent burns.</p>
Hot water outlet	<p>The hot water valve can be opened and closed to deliver hot water via the outlet. This provides hot water for beverages such as tea or can be used to dilute coffee. Hot water may be used for cleaning or rinsing equipment or serviceware. Care needs to be taken when working with boiling water.</p> <p>The water level gauge will indicate the level of water in the machine.</p>
Heating trays	There is a heater tray on the top of the machine to keep the serviceware warm. The drip tray catches excess fluid, but also warms the serviceware when it is placed on the tray.

Features of coffee grinders

Coffee grinders will vary from basic to highly technical models.

Coffee grinders generally work on the same principle, which is to grind whole roasted coffee beans to a particular particle size for use in a coffee machine. The most common commercial variety is the burr grinder, which involves two blades spinning in alternate directions to grind the bean to the desired size.

Coffee grinders can be adjusted from a coarse to a fine grind. More finely ground coffee is used in espresso machines. Some grinders deliver the exact dose of ground coffee automatically, while others require manual dosing. The manufacturer's instructions will show how this is done. In some businesses, only the manager or senior barista is allowed to adjust the grind.



Here is some information about parts of coffee grinders.

Feature	Function
On/off switch	This is used to turn the grinder on and off.
Bean hopper	This is where the coffee beans are held. Keep clean and dry, and out of direct sunlight.
Dosing chamber	Once the coffee beans have passed through the grinding blades, the coffee grounds are stored here.
Grind adjuster	An adjustment lever is used to adjust the size of the grind. This is done to maintain a consistent quality grind.
Dosing lever	This lever is pulled forward to measure 7–9 grams of ground coffee. Pull once for a single filter basket and twice for a double filter basket. It is spring-loaded and clicks in one direction. When you let go, it should return to its starting position.
Wastage tray	This catches and collects the spilt coffee grounds.
Tamper	<p>Handheld tampers are used to compact (or tamp) the coffee in the group handle. They are flat and fit the exact diameter of the filter basket. This allows for an even pressure to be used when tamping the coffee grounds into the group handle (essential for the quality of the espresso extraction).</p> <p>Some coffee grinders have a tamper attached to the dosing compartment. This is called a grinder tamper and is used in the same way as a handheld tamper. This is fixed to the machine and can be used instead of the handheld tamper. Pressure is placed upwards towards the fixed tamper. It flattens and compresses the ground coffee into the filter basket.</p>

Preparing equipment for service

The manufacturer may provide a checklist of tasks to set up the equipment for service.



Tasks to prepare equipment for service

The grinder and espresso machine should have been cleaned after the last service, meaning they should be ready to use. Most baristas use the first few espressos of the day as quality test extractions. These first extractions may not meet the quality standards, so are not served to customers.

1. Turn on the espresso machine and allow time for it to heat up.



2. Monitor the pressure gauge for optimal pressure.



3. Flush clean water through each group head to remove stale water.



4. Run about 100ml of water through each group handle to flush the handle.



5. Run water through the hot water outlet to flush stale water.



6. Purge the steam wands to release any stale milk inside the pipe.



7. Wipe out the dosing chamber in the coffee grinder and discard any old coffee.



8. Fill the hopper with fresh beans and grind a small amount for a test extraction.



9. Check the weight of the grind.



10. Make several test extractions to check the quality. Make adjustments to the grind as required and retest as required.



Watch this video [01m:27s] to learn about how to prepare equipment for service.



Clean and maintain machines during service

During service the cleanliness of the espresso machine must be maintained so that the quality of coffee remains consistent.

The machine should be continually wiped throughout the day and thoroughly cleaned at the end of service. A number of clean cloths should be kept close to the machine for wiping, polishing and general cleaning of the bench and equipment.

Here is a list of some ways to keep the espresso machine clean during the service period.

Clean the group head



Briefly run hot water through the group handle before you lock the handle in place. Do this each time you use the group head. This refreshes the group head and slightly reduces the water temperature.

After busy periods it's advisable to run a quick back flush on the machine group head. This means using the group handle with a blind filter (filter basket with no holes) to build the pressure before flushing. This pushes water up to the shower screen and flushes away coffee particles lodged in the screen.

Clean the steam wand

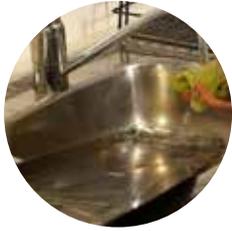


Prior to texturing milk, turn on the steam wand to expel excess water and any milky residue. This is called purging. Next, wipe the wand with a cloth.

Turn on the steam wand, facing it towards the back of the machine.

After every texturing of milk, wipe the steam wand with a clean damp cloth.

Clean the drip tray



If there have been spills or coffee residue left in the drip tray, this can be removed, washed, dried and replaced.

Clean general spills



Wipe the cup tray and the panels of the machine with a clean, soft cloth to prevent splashes and spills.

Safe operating practices

The espresso and grinder machines are fixed pieces of equipment connected to water and electricity.

Safe practices need to be employed when working with water and electricity, and there should not be a need to move the machines once they are operating. Many of the parts of the espresso machine heat up and the hot water outlet and steam wand must be used carefully to prevent burns. The grinder has moving parts, so you should not place anything inside the hopper, especially your hand.

Be aware of these risks when using espresso machines:

- Burns from steam, hot liquid and hot components.
- Fire from electrical faults.
- Explosion from the combustion of the steam.
- Falls from spills or wet floors (leaking pipes).
- Injury from grinder blades.



Activity 6: Espresso machines and grinders

Check your understanding of espresso machines and grinders.

Question 1 Draw a line from the beginning of each sentence to match the correct ending.

- | | |
|---------------------|--|
| * Steam wands | * holds the tamped ground coffee and may have a single or double spout. |
| * Tamper | * can have larger holes, finer holes or be a blind filter (with no holes). |
| * The filter basket | * dispense dry steam under high pressure used for texturing milk. |
| * The group handle | * are handheld or fixed to the grinder machine. |

Question 2 Which of the following are equipment cleaning tasks to be undertaken during service? Tick all that apply.

- Turn off the espresso machine to wipe the back of the machine.
- Flush the group head with hot water.
- Purge the steam wand.
- Remove rubbish bins after service.
- Wipe the drip tray.
- Remove all the serviceware to wipe the warming tray on top.

Question 3 Circle the correct answer. Burn hazards include the hot water outlet and steam wand.

* True

* False

Question 4 Number the steps you would follow from 1 to 7 to set up equipment ready for service.

- _____ Run water through the hot water outlet.
- _____ Run water through each group handle.
- _____ Grind a small amount of fresh beans for a test extraction.
- _____ Make several test extractions to check quality.
- _____ Turn on espresso machine. Allow time for it to heat up and reach optimal pressure.
- _____ Flush each group head.
- _____ Purge the steam wand to clean it.

Click to
complete
Activity 6



Read the following workplace example to see how the concepts you have learned are applied in a real-life situation.

Workplace example for Topic 2

Cody is on the early shift today at Maples Cafe near the railway station. The cafe opens at 6 am Monday to Friday and opens later on weekends. So that he can ensure all the mise en place is completed before the cafe opens, Cody needs to start work at 5:30 am. He knows how busy the mornings are with people rushing to catch trains and buying takeaway coffees.

Even though Cody has been working here for a year, he still uses his checklist to ensure he doesn't miss anything.

The first thing Cody does is to turn on the coffee machine as this needs time to warm up. While the espresso machine is warming up, Cody gets started on the rest of the mise en place:

- He collects fresh milk and puts it in the fridge near the coffee station.
- He stacks the serveware on top of the espresso machine to warm it up.
- He replenishes his stock of takeaway cups, sugar and other accompaniments.
- He makes sure all of his small coffee-making equipment is accounted for as he was off work the day before.
- He checks the group handles and filters, and the blind filter basket for back-flushing cleaning during the day.
- He collects a stack of clean cloths for wiping.

Cody checks the pressure gauge of the espresso machine to see if it is ready for use. He runs water through each group head to flush the system and then runs water through each group handle to flush the group handles. He puts water through the hot water outlet to flush the old water out. Next, he runs the steam arms on his machine for about 30 seconds. He is always careful when doing this; he pushes them to the back of the machine to avoid the steam burning his arms.

As the head barista of Maples Cafe, Cody is the only one who can adjust the grinder. The grinder is to the right of the espresso machine. To set up the grinder, Cody grinds a small amount of coffee for his test extractions. He doses the required amount of grind into his single-filter basket group handle and extracts his first coffee of the day. He checks the timing of the extraction and visually checks that he has extracted 30 ml of espresso coffee. As the spent coffee ground looks to be the correct texture, he does not need to adjust the grind. He repeats a test extraction for all three group heads.

It's now 6 am and Cody is ready to open the cafe. He can already see people waiting at the door – it's going to be another busy day.





Summary of Topic 2

1. Mise en place means to set in place all equipment and stock required for service.
2. A pre-service checklist is important to use to ensure nothing of the mise en place is missed.
3. Coffee beans are hygroscopic, which means that they are absorbent.
4. Other accompaniments such as sugar and chocolate powder should be stored in dry store conditions.
5. The use-by dates on the labels of milk should be read and used to rotate stock so the oldest milk is used first.
6. Maintaining an adequate level of hygiene requires you to follow certain procedures and policies for handling, storing and preparing food.
7. Part of a barista's job is to understand the features of different espresso machines and coffee grinders, and the functions of machine parts.
8. Cleaning and maintaining machines during service will ensure quality of the espresso coffee beverages is maintained.
9. The machine should be continually wiped throughout the day and thoroughly cleaned at the end of service.
10. Follow safe operational practices when operating espresso machines to ensure no burns occur.



Topic 3 | Prepare and serve espresso coffee

There will be a variety of methods and techniques for preparing and serving espresso coffee beverages. Many baristas develop their own styles and some restaurants require particular techniques or workflows to be followed.

Differences between coffee machines will also require slightly different practices, especially if a machine is fully automated compared with a manual machine. Whatever methods are used, there is some specific technical knowledge needed, and steps that must be taken to ensure a quality coffee is produced.

In this topic you will learn about:

3A Preparing the dose and grind

3B Preparing the coffee extraction

3C Texturing milk

3D Serving coffee

3A | Preparing the dose and grind

The process of grinding the coffee and producing the correct dose of ground coffee is vital to ensure the best quality espresso coffee extraction.

The coffee must be freshly ground just before the beverage is made.

The test extraction will provide information on the quality of the espresso. It is used as a quality test so that adjustments can be made to the particle size of the grind to make sure that quality is consistent throughout the service period.

The correct amount of coffee must be ground to the correct degree, fineness and texture.

Beans will be placed in the bean hopper that then pass through the grinding blades and reach the dosing chamber ready for use.

Humidity can change the grind of the coffee, as coffee is 'hygroscopic'. This means coffee beans absorb moisture if the air becomes humid and lose moisture if the air becomes dry.

Small adjustments can be made to the grind-adjusting lever to re-establish the correct grind texture. In some places this may need to be made several times a day.

Coffee grinders can be set to adjust the grind from coarse to fine. A more finely ground coffee is used for espresso coffee. One way to check the correct coffee grind is to rub some ground coffee between your fingers. It should not be too powdery and should feel slightly gritty.



Measure the dose and adjust the grind

When preparing coffee for extraction, you need to know how to measure the dose, adjust the grind and clean the grinder.

Rob is a trainee at a local cafe. He has some questions for Lea, the barista he is working with.

Read Rob's questions about measuring the dose, adjusting the grind and cleaning the grinder, followed by Lea's responses.

Rob



Lea, what do I need to know about measuring the coffee dose?

Lea



First, you need to know that the adjustable dosage controller inside the dosing chamber is used to determine the amount of coffee that is dispensed into the dosing chamber.

You will notice that a pre-determined amount of coffee is dispensed for each full click on the dosing lever. This is generally 7–9 grams of coffee for a single shot of espresso or 14–18 grams for a double outlet group handle.

If you are using a grinder that requires you to pull a dosage lever, the excess coffee does not need to be levelled off with a spatula.



OK, that makes sense. Are there different ways I can measure the dose?



There most certainly are! Some coffee venues have a small set of scales used to exactly measure the dose.

At busy times, you must keep an eye on how much ground coffee you have in the dose chamber. As the level becomes lower, you may need to visually check the amount of coffee being dispensed into the filter basket of your group handle.

Doses can be measured by sight, electronically, manually or mechanically.

Let me summarise the methods for measuring doses:

- Check the dosage by sighting the line on the filter basket.
- Set the measurement from the dosing chamber or weigh the grind.
- Measure the dose using a measuring spoon.
- Pull the dose lever to ensure an accurate amount of coffee is delivered.



I have seen you adjusting the grind. It's pretty important, isn't it?



Absolutely! Perfecting the grind is one of many variables in the process to ensure coffee excellence is maintained throughout service. You must monitor the quality of the coffee, and make adjustments to the dose and grind to ensure a constant standard is kept.



What's the most common quality check?



The most common quality check is to examine the coffee and check for good body. Place the coffee test extraction in a clear glass. By holding it up to the light, you should not be able to see through it. The crema should be honey-coloured and should be a 5 mm layer on top of the espresso.



So if that's the most common quality check, what are some others?



Another way is to check the used coffee in the filter basket of the group head. The spent grounds are called the cake, puck or biscuit.

They should drop out of the filter basket and not crumble. If the cake is wet, loose and sloppy, this could be an indication that the grind was too coarse or poorly tamped, or that the dose was too small. You can see why adjusting the grind is so important.



Yes, I can see that! So, how long should the extraction take?



The extraction should take 25–30 seconds. If there is a delay in the coffee being extracted, the grind may be too fine and it may block or slow the flow of coffee, which could produce over-extracted bitter coffee. If the grind is too coarse, the water will flow too fast, which could produce an under-extracted, thin and watery coffee. This will not please your customers!



Thanks, that makes it clear. I think I will create a summary of how to monitor the grind and dose. Do you have any tips?



That's a very good idea, but I can save you a bit of time as I've already created a summary. Here it is!

You can monitor the grind and dose by:

- always ensuring freshly ground beans are used
- adjusting the grind required from coarse to fine
- measuring the dose carefully and accurately
- checking the water pressure is at 8–10 bars
- checking water temperature is 88–92°C
- checking the quality with test shots by taste, looking for balance, sweetness, acidity and bitterness
- checking the puck for texture
- reporting any issues to your supervisor or manager if you need help
- calling in repair services if issues cannot be resolved in house.



So after all that, the grinder has to be cleaned, right?



Yes, that's right. At the end of service the grinder will require a full cleaning.

During service, make sure you keep enough beans in the hopper to meet the needs of the orders coming in and to keep an efficient workflow.

Wipe the outside of the grinder of any splashes from the espresso machine. You can use a damp cloth to remove coffee grounds from around the grinder. This will help to keep the area looking tidy and clean. Believe me, a dirty grinder is not a pleasant sight!



Activity 7: Prepare the dose and grind

Check your understanding of preparing the dose and grind, and cleaning the grinder.

Question 1

Circle the correct answer. A dose of 7–9 grams of coffee will need to be weighed for each espresso.

✱ True

✱ False

Question 2

Circle the correct answer. You should clean the grinder regularly during service and do a full clean at the end of service.

✱ True

✱ False

Question 3

Which of the following apply to preparing the grind? Tick all that apply.

- Humidity can change the grind of the coffee.
- Adjustments to the texture of the coffee should occur weekly.
- Coffee grinders can be set to adjust the grind from coarse to fine.
- The grind should not be too powdery and should feel slightly gritty.
- Try to make adjustments yourself without getting advice from a supervisor.

Question 4

Which of the following relate to monitoring the quality of the coffee? Circle yes or no for each statement.

- a. Adjust the grind from coarse to fine. ✱ Yes ✱ No
- b. Measure the dose carefully and accurately by sight or by using scales. ✱ Yes ✱ No
- c. Ask a customer what they think you should do. ✱ Yes ✱ No
- d. Report any issues to your supervisor/manager if you need help. ✱ Yes ✱ No
- e. Check the quality with test shots regularly throughout service. ✱ Yes ✱ No

Click to
complete
Activity 7

3B | Preparing the coffee extraction

There are some variations in the methods and techniques for extracting coffee.

The extraction process aims to dissolve the flavours from the coffee grounds in water. This is completed when hot water, which is heated under pressure, is forced through the ground coffee. The key to quality is to allow the water the right amount of time to be in contact with the coffee. This will release the aroma and the oils in the coffee to create the honey-coloured crema and deep brown coffee.

Generally the operation of an espresso machine is similar no matter the type of hospitality venue. However, there will be some individual differences in the workflow required for the efficient service of coffee to customers. For example, there may be limited bench space available or there may be other food or beverage services occurring in the same area.

There are a number of key quality indicators that need to be monitored during the extraction process. The barista needs to know how and when to make adjustments during the extraction process. The overall goal is to ensure quality of the espresso is maintained in every order.

Method for extracting espresso

Espresso coffee forms the basis of almost all the other coffee varieties and styles.

You therefore need to be able to make and serve the perfect espresso. Practice, which includes trial and error, will help you perfect your technique. Here are the basic steps needed to produce an espresso coffee using a commercial espresso machine and grinder.

1. Select the correct serveware



Cups and glassware can be stored on the cup-warming tray on top of the espresso machine. This helps them to feel warm.

2. Turn on the grinder and grind the coffee beans to fill the dosing chamber



The texture and grain of the grind are important in the quality of the espresso.

3. Remove the group head and knock out old grounds into the tamp box



Always remember to remove old grounds before starting the next extraction.

4. Wipe filter basket dry with a clean cloth



Always start with a clean, dry, hot filter basket..

5. Dose the filter basket with the correct amount of coffee



The filter basket sits inside the group handle, which can either have a single or a double spout. Make sure you dose the correct amount (a single spout is for one coffee extraction and a double spout is for two).

6. Tamp the coffee dose



Tamping is a process that creates a firm and even coffee cake (or puck) that the water can filter evenly through and extract the coffee shot. Ensure you have the right amount of coffee and that it is tamped with the right amount of pressure.

A handheld tamper is often used; there is usually also one fixed to the grinder machine. Take these steps to tamp the coffee:

- Apply approximately 2 kg of pressure.
- Tap and wipe the group handle to remove any loose grinds.
- Press the coffee cake down a second time with more force (about 15–18 kg of pressure).
- Polish the surface – this involves rotating the tamper while pressing it lightly.

7. Flush the group head by allowing water to flow through it



Old coffee grounds in the group head can contaminate the next coffee and this can result in a bitter flavour. Flush the group head by running hot water through it.

8. Check the pump pressure



Check the dial for the pump measure. It should read at 8-10 bars..

9. Lock group handle into the group head



Ensure the group handle is firmly in place.

10. Turn the group control switch on to begin the extracting process



Most espresso machines allow you to press for single or double extractions. If the machine only has a manual option, you will then need to time the extraction.

11. Serve as espresso or other coffee type as per order request



The filter basket sits inside the group handle, which can either have a single or a double spout. Make sure you dose the correct amount (a single spout is for one coffee extraction and a double spout is for two).

Watch this video [02m:50s] to learn about the extraction process.





Activity 8: The extraction process

Check your understanding of the extraction process and tamping the coffee.

Question 1 Number the steps you would take from 1 to 6 to produce an espresso coffee using a commercial espresso machine and grinder.

- _____ Dose and tamper the filter basket.
- _____ Flush the group head.
- _____ Begin the extracting process.
- _____ Remove group head, and knock out old grounds.
- _____ Select the correct serveware.
- _____ Lock the group handle into the group head.

Question 2 Number the steps from 1 to 4 you would follow to tamp coffee.

- _____ Polish the surface.
- _____ Apply heavier pressure.
- _____ Apply light pressure.
- _____ Remove loose grounds with a dry cloth.

Click to
complete
Activity 8

Factors that influence quality

There are many variables that can affect the espresso.

Every order needs to be checked for quality and this will become standard practice as you become more experienced and confident with the process. There are a number of things to look for that will indicate the quality of the espresso.

The technique applied for test extractions can in most cases also be applied to customer coffees. Under-extracted coffee has an accentuated sour and thin note. Over-extracted coffee will be weak with bitter acrid notes. It is crucial to know the relation between the extraction time and the volume so that you are aware of what is occurring during the extraction process.

Here are quality indicators for espresso coffee.

Colour of crema



Crema should be thick and honey-coloured. Changes in crema texture and colour indicate an over- or under-extraction.

Changes in flow texture and rate of flow



Timing the extraction ensures consistent quality. Changes in the rate of flow will affect the quality and recommended timing for an espresso.

Cake of used ground coffee



The cake (or puck) must not be too soft or watery, or too dry or hard, but should fall out in a biscuit shape.

Water pressure during extraction



The pressure must be maintained and constant to extract the maximum coffee from the beans.

Water temperature



Water that is too hot or too cold will affect the flow of the coffee.

Taste of the finished product



The espresso should be sampled several times a day to monitor the quality of the flavour.

Freshness of the beans



Older beans lose their flavour and can become bitter.

Environmental factors such as humidity



High humidity makes the coffee absorb water and pack down tighter. This increases its resistance to the water passing through. The grind needs to be a little coarser in humid weather.

Extraction rates



If the shot is less than 20 seconds, the grind could be too coarse and the taste could be sour.

If it takes longer than 30 seconds to produce a shot of espresso, the grind will be too fine or over-packed. The taste is likely to be very bitter and burnt.

Click to complete Activity 9



Activity 9: Factors that influence quality

Check your understanding of factors that influence quality.

Question 1 Which of the following are quality indicators for coffee? Tick all that apply.

- Location of the machine
- Crema at the top of the espresso
- Changes in the flow texture and rate of flow
- Number of espressos produced
- Water pressure in the machine
- Consistency of used coffee grounds (cake)

Question 2 Which of the following apply to the grind in high humidity? Tick all that apply.

- In high humidity, the grind should not alter.
- In high humidity, the grind needs to be a little finer.
- High humidity makes the coffee absorb water and pack down tighter.
- Packing down tighter increases the grind's resistance to the water passing through.
- In high humidity the grind needs to be a little coarser.

Question 3 Draw a line from the beginning of the sentence to match the end of the sentence.

- | | |
|-------------------------------------|--|
| * Taste | * will recommend timing for an espresso. |
| * Incorrect water pressure | * can result in under-extraction. |
| * Changes in the rate of water flow | * can be monitored by sampling the espresso. |

How and when to make adjustments for quality

Knowing how and when to make adjustments for quality is an important skill that comes with practice.

To maintain the quality of the espresso, some adjustments may need to be made to monitor and restore the quality throughout the service period.

A process of eliminating the possible faults is the only way to work out what changes you'll need to make to improve the extracted coffee. Using an automatic machine or timing the extraction process should deliver the same amount of water. Other variables that may need to be adjusted include the grind, the tamping and the dosage.

There are three stages during the extraction process that can help you work out if adjustments are required. If the coffee has unfavourable flavour notes, adjustments can be made during these stages without having to adjust the grind or tamp.

Three stages of the extraction process:

- Early flow produces intensity, sourness and dark coffee.
- Middle flow produces sweetness where the sugars caramelise and the coffee becomes lighter in colour.
- Late flow is weak and produces a bitter flavour and a light-coloured crema.

Making adjustments during the extraction process:

- If the espresso is sour, allow the first few seconds of coffee to dispel into the drip tray.
- If the espresso is flat or bitter, reduce the extraction to compensate.

Monitor and adjust for quality

During the extraction process, you must monitor the quality and make adjustments.

Here is a list of things to look for to monitor and make adjustments to maintain quality.

Under-extraction



Under-extraction can occur when the speed at which the espresso is produced is less than 20 seconds. The tamp may be too soft or the water may not be hot enough.

Check the spent ground coffee cake. It should drop out of the basket without crumbling. If it is too soggy, it will fall apart and be wet and runny. Too little coffee can cause too much water to flow through on extraction, resulting in under-extraction. The coffee will be thin and sour-tasting and the crema will be pale and thin.

Over-extraction



Over-extraction could occur when the speed at which the espresso is produced is more than 30 seconds. The tamping may have been too hard or the water may have been too hot.

Too much coffee means the water cannot pass through and extract the coffee, so the cake will be dry. The coffee may flow through intermittently rather than in a constant stream. The coffee will be watery, burnt and bitter in taste. The crema will be dark in colour. The grind may be too fine or there may be too much coffee in the filter basket.

Coffee grounds in the bottom of the serviceware



This may occur because:

- there was too much coffee in the filter basket
- the ground was too fine
- excess coffee grounds were not wiped away before extraction
- the water was not hot enough to extract the coffee
- the machine has a fault (for example, the gasket that seals the filter handle into the group head may be worn out).

You may need to make the following adjustments to ensure quality:

- Adjust the grind by a small amount to make it finer.
- Check the amount of coffee in the dose.
- Adjust the tamp by applying more pressure.
- Check the water temperature gauge of the machine – the temperature at the group head should be 90–95°C.
- Check the water pressure of the machine – it should be 8–10 bars of pressure.
- Call a technician to check the machine.

Watch this video [04m:02s] for an explanation of under-extraction and over-extraction.



Monitor espresso machines

The coffee machine and grinder need to be reliable and able to produce large quantities of quality espressos to meet customer orders.



A busy service period can mean there are hundreds of coffees being produced. Part of extending the life of the machine is to make sure they are regularly serviced, maintained and thoroughly cleaned in accordance with the manufacturer's recommendations.

Your workplace may have a maintenance schedule. Any issues with the machine must be brought to the attention of the manager or supervisor. Part of your job as the operator of the machine is to monitor its operational efficiency throughout service.

Monitoring the coffee machine and grinder

- Check the water level.
- Check the water quality.
- Check the water pressure (should be 8–10 bars).
- Check the water temperature at the group head (should be 90–95°C).
- Change the grinder blades approximately every six months.



Activity 10: Monitor and adjust for quality

Check your understanding of how and when to monitor and adjust for quality.

Question 1 Which of the following make up the stages during the extraction process that can help you work out if adjustments are required? Tick all that apply.

- Early flow produces intensity, a sour taste and dark coffee.
- Middle flow produces sweetness where the sugars caramelize and the coffee becomes lighter in colour.
- Last flow produces an unpleasant flavour with a dark colour.
- Late flow is weak and produces a bitter flavour and a light-coloured crema.

Question 2 Which of the following could be used to monitor a coffee machine and grinder? Tick all that apply.

- Check water level.
- Check water quality.
- Check water pump pressure (should be 6–8 bars).
- Adjust the tamp by applying less pressure.
- Change grinder blades approximately every six months.

Question 3 Read each statement and circle either true or false.

- | | | |
|---|-------------------------------|--------------------------------|
| a. If the espresso is extracted for less than 20 seconds, the coffee will be under-extracted. | <input type="checkbox"/> True | <input type="checkbox"/> False |
| b. If the espresso is extracted for 50 seconds, it will be over-extracted. | <input type="checkbox"/> True | <input type="checkbox"/> False |
| c. Grounds in the bottom of a coffee cup can be caused by too little coffee in the filter basket. | <input type="checkbox"/> True | <input type="checkbox"/> False |

Click to
complete
Activity 10

3C | Texturing milk

Texturing is critical to ensure you consistently produce milk coffees to a quality standard.

There are many ways to foam or texture milk. Techniques can vary from one venue to another. Textured milk will take on a silky, smooth, velvety texture where there are no air bubbles and the milk will be rich and thick, with a creamy mouth feel and naturally sweet flavour.



Methods and techniques for texturing milk

Almost any milk can be textured to create good foam.

As discussed in Topic 1, there is a variety of customer preferences for types of milk, such as full-cream milk (also called full-fat milk), skim, soy and lactose-free milk, and cafe-enhanced milk.

Most baristas prefer to texture full-cream milk because it is easier to achieve the perfect velvety foam which is thick and is full of flavour. In Australia, towards the end of summer and start of autumn, cows produce milk that will not froth as well because the fatty acids begin to break down. One way to alter this is to use cafe-enhanced milk that is made to texture well every time.

There are a number of things that can be done to ensure a good foam when texturing milk.

Consider the following when texturing milk:

- Milk should be fresh and cold. The colder the milk, the longer it will take to steam and the more velvety and smooth it will become.
- Jugs should be stainless steel with straight sides that taper towards the top. They need to have a good pouring spout.
- Jugs come in various shapes and sizes, which means you can texture for one or four at the same time.
- Ensure there is enough steam pressure in the machine.
- Skim milk separates much more quickly than full-cream milk.
- Make sure the coffee is ready before the milk.
- Pour milk immediately for the froth to form properly for cappuccinos.
- Roll milk for lattes and flat whites.
- Never use milk heated to over 82°C. At this temperature, the milk proteins, enzymes and natural sugars are destroyed, changing the flavour.
- Discard milk that has been heated. Do not reheat milk under any circumstance.

Procedure for texturing the milk

1. Select the best sized jug for the amount of milk for the order. Half-fill the jug with fresh cold milk. Face the wand towards the back of the machine to prevent burning.



2. Purge the steam wand to expel the excess water and any milky residue.



3. Wipe the wand clean. Make sure the cloth you use is only used for this task.



4. Hold the jug by the handle and tilt it so you can see inside the jug. Place the thermometer in the jug. Place the tip of the steam arm just below the milk surface in the centre of the milk jug.



5. Turn on the steam wand to full pressure and hold the jug at a slight angle. This will cause a funnel effect around the steam arm known as rolling.



6. Listen for the correct sound of the steam in the milk. It should make a hissing sound when 'stretching', followed by a quieter sound when texturing. As the milk starts to expand, the milk level will rise. Slowly move the jug down so the steam wand tip remains just below the surface.



7. As the milk heats, the bottom of the jug will become warm. If you are using a thermometer, watch for the temperature to reach 60°C.



Turn the steam wand off and the temperature will continue to rise to 75°C. The milk in the jug should be a smooth, silky foam.

8. Purge the steam wand again by facing it towards the back of the machine. Once again, wipe it with a clean, damp cloth.



9. Tap the jug gently on the bench to collapse any large aeration bubbles. To combine the foam and milk, swirl the milk gently in the jug to ensure an even consistency.



10. Pour the milk immediately into the espresso coffee extraction for the customer order.



Watch this video [02m:02s] to learn about texturing the milk.



Pour the textured milk

Texturing the milk is done the same way for all milk-based espresso coffee beverages

Cappuccinos, lattes and flat whites are all poured differently.

Cappuccinos



Cappuccinos require a dense, meringue-like foam.

To achieve this after steaming, keep the milk rolling in the jug. Rest the jug on the rim of the cup and pour steadily and quite quickly into the centre of the cup. Once in the cup, the milk will separate using this technique and produce the 1/3 coffee, 1/3 milk and 1/3 foam proportions required for a cappuccino.

An alternative method is to let the jug of textured milk sit for 20 seconds, which will allow the foam to settle and separate with the foam on top. Using a spoon, hold the foam back and pour the milk up to 2/3 of the cup, then spoon the foam on top.

To finish, dust with chocolate powder.

Lattes and flat whites



Lattes and flat whites have less foam than cappuccinos. The milk must be poured from about 6 cm above the cup. Pour slowly so the foam will not break, resulting in less foam on top of the coffee.



Lattes have a little more foam than flat whites. To achieve this, begin by pouring the milk on the far edge of the glass. Keep the glass at a sharp angle – this allows the textured milk to flow under the crema foam and hold the volume of foam in the jug.

To create a pattern, begin to agitate the jug in a smooth, even, left to right movement while slowly moving the jug forward, breaking the surface of the milk. Begin this action when the milk level reaches the halfway point in the glass. This will create latte art on the surface.



Activity 11: Texture milk

Check your understanding of texturing milk.

Question 1 Number the steps from 1 to 7 you would follow to texture milk.

- _____ Purge the steam wand and wipe the wand clean.
- _____ Tap or swirl the jug to collapse large bubbles and combine foam and milk.
- _____ Purge the steam wand again and wipe it clean.
- _____ Pour milk into the espresso coffee to meet the customer's order.
- _____ Select the jug and half-fill it with cold milk.
- _____ Texture the milk until there is a smooth, silky foam.
- _____ Tilt the jug. Place tip of the steam arm just below the milk surface in the centre of the jug and turn on the steam wand to full pressure.

Read what each trainee barista says about pouring milk and circle the correct response.

Question 2 To achieve an even consistency, the milk is swirled to combine the foam and milk.



* True

* False

Question 3 A barista should listen to the noise when texturing milk.



* True

* False

Question 4 A customer request for a hot coffee means heating the milk for extra time.



* True

* False

Question 5 The milk level rising indicates the milk is expanding.



* True

* False

Question 6 Adjust the temperature by turning off the steam wand to prevent overheating the milk.



* True

* False

Question 7 After texturing, the milk should have a smooth, silky foam.



* True

* False

Click to
complete
Activity 11

3D | Serving coffee

Every business that serves coffee has standards about the presentation of coffee beverages.

When presenting and serving customers, beverages must be served as quickly as possible. However, you should always check that they are well presented and look appetising. Learning how to sequence orders as they come to the coffee station gets easier with practice. During busy service periods, being able to sequence orders means there is less wastage and customers are not left waiting too long.



Presentation of beverages

Excellent presentation will add to the customer's pleasure.

Read what each person says are the key considerations when presenting a coffee beverage.



Bill

All coffees must be presented in accordance with the customer's preferences. For example, they might ask for a long black with milk on the side.

Be sure to always use clean and hygienic serviceware. It is pretty awful to be given a coffee in a lipstick-stained cup!

Never touch cups or glasses where customers will place their mouths (such as along the rim) and, when placing the lid on takeaway cups, do not handle the drinking hole. You should also check for any drips or spills before serving the coffee.

Let's see what Isa lists as her key considerations when presenting a coffee.



Isa

I agree with everything Bill said. I would add that serviceware must be warm. A hot coffee served in a cold cup doesn't work well!

A folded napkin can be placed between the cup or glass and the saucer. A clean, dry teaspoon should also be provided regardless of whether the customer desires sugar.

If you are serving coffee at a table, make sure the coffee is placed with the handle of the cup facing the customer's hand and the teaspoon is placed on the right-hand side of the saucer or across the top of the cup.

You should always handle accompaniments such as marshmallows and biscuits with tongs, and store them in appropriate containers.

Latte art

Latte art is a method of pouring textured milk into a shot of espresso coffee so that a design or pattern will be created on the surface of the latte.

This type of presentation requires a reasonable amount of skill and practice. It can be difficult to achieve consistency over several lattes because the conditions of the espresso shot and the textured milk can vary.

Watch this video [00m:52s] to learn about the fundamentals of latte art.



Sequence orders

Coffee orders will come in thick and fast during a busy service period.

A coffee station may get orders from wait staff or from customers approaching the coffee station directly. There will need to be a process of sequencing orders so they can be made and served to customers in a prompt manner. Coffee beverages should be handed to the customer as quickly as possible so that they are the correct temperature when the customer receives their order.

Sequencing orders:

- Prepare coffee orders in the order they have been taken.
- Try to make multiple coffees at once using double group handles and/or group heads.
- Prepare different jugs of milk types using larger jugs.
- If possible, prepare the same coffee types at the same time.
- Prepare group orders together.

Here is an example.

A waitress takes an order at a table for two cappuccinos, two skinny lattes and one takeaway cappuccino. The espresso machine has three group heads.

The barista prepares three group handles:

- one double spout for the two cappuccinos
- one double spout for the two lattes
- one single spout for the takeaway cappuccino.

The barista prepares two jugs of milk:

- a jug with full-cream milk for the three cappuccinos
- a jug with skinny milk for the two lattes.

The barista turns on all group switches at once to make the espresso. He uses cups for two of the cappuccinos, glasses for the lattes and a takeaway container. He textures the skinny milk first and prepares the two lattes. He then textures the full-cream milk and pours the three cappuccinos using the same jug.

By following this process, the barista has completed five coffee orders at once and the table order can go together.



Minimise waste

To minimise waste, ensure that the required amount of milk and the appropriate sized jug is used.

For example, if you are making a coffee for one person, use the smallest jug and half-fill it so there is no milk wastage.

Over time, the costs of pouring out unused milk or having to discard ground beans from the previous service will be a significant expense for the business. It is best practice to be mindful of wastage and assist the profitability of the business.

To minimise waste of coffee beans and ground coffee, adopt the 'grind as you go method'. This means only grinding what you need for each order. This may not always be practical during busy rush periods, but will be more meaningful towards the end of the day to 'run down' the coffee beans in the hopper.



Activity 12: Serve coffee

Check your understanding of serving coffee.

Question 1

Circle the correct answer. When the coffee station is busy, customers are happy to be given used saucers.

* True

* False

Question 2

Which of the following are correct? Circle yes or no for each statement.

- a. Latte art is pouring textured milk into espresso coffee so that a design is created. * Yes * No
- b. Coffee served at tables is given preference to takeaway orders. * Yes * No
- c. Sequencing orders means customers are served promptly and the coffee is the correct temperature. * Yes * No
- d. Accompaniments are food items, such as marshmallows or biscuits. They should always be handled with tongs. * Yes * No
- e. Every business that serves coffee will have standards about its presentation. * Yes * No

Question 3

Give **two** examples of things that could be done to minimise waste and maximise profitability of coffee preparation.

Click to
complete
Activity 12



Workplace example for Topic 3

Cody has had an extremely busy morning at Maples Cafe and has made a large number of coffee beverages. He now has time to tidy up his work area before the lunchtime rush. He makes a test extraction to see if the grind setting is still working at its best.

Cody wipes up all the coffee grounds around the grinder and wipes down the outside of the grinder. He conducts a back flush on the machine and wipes it down. He purges the steam wands, wiping as he goes.

Cody grinds some fresh coffee and measures the dose into the filter basket for a single cup of coffee. He times the extraction and checks for a deep brown colour of the espresso and a honey-tinged crema on top. Cody is happy his grind and espresso machine are running well and that no adjustments are required, unlike yesterday, when it became humid and he had to adjust the grinder.

The lunchtime trade is on him and Cody is busy once again. The Maples Cafe espresso machine has three group heads, so Cody can extract up to six espresso coffee shots at one time.

He has an order in for a table of six coffees:

- two lattes
- two skinny cappuccinos
- one flat white
- one short black.

Cody is efficient and knows how to sequence his orders so they can be served together. He uses three double group handles and grinds his coffee to order. He places two latte glasses under the first one, two cups under the second one, and one cup and a demitasse under the third one. Once done, he pours two jugs of cold milk, one with full-cream milk and one with skinny milk.

While the coffees are extracting, he textures the full-cream milk first as this will hold longer than the skinny milk. Once the extractions are finished, he puts the short black on the saucer, then pours the lattes and the flat white. He then quickly textures the skinny milk and completes the cappuccinos.

Cody has managed to complete the table order in less than five minutes. As always, he checks he has not left any spills or drips on the side of the cups. The coffees are ready to be served.



Read the following workplace example to see how the concepts you have learned are applied in a real-life situation.



Summary of Topic 3

1. The process of producing the correct dose of coffee ensures the best quality espresso coffee extraction.
2. The correct amount of coffee must be ground to the correct degree of fineness and texture. This is generally 7–9 grams of coffee for a single shot of espresso and 14–18 grams for a double outlet group handle.
3. The extraction process aims to dissolve the flavours from the coffee grounds in water. This involves hot water that is heated under pressure being forced through the ground coffee.
4. Every order needs to be checked for quality and this will become standard practice as you become more experienced and confident with the process.
5. Almost any milk can be textured, but most baristas prefer to use full-cream milk because it's easier to work with.
6. Follow the step-by-step process to texture the milk to ensure a smooth, velvety foam.
7. Texturing the milk is done the same way for all milk-based coffee beverages. However, cappuccinos, lattes and flat whites are all poured differently.
8. All coffees must be presented in accordance with the customer's preferences, and in a clean and hygienic manner.
9. There needs to be a process of sequencing coffee orders so they can be made and served to customers in a prompt manner.
10. To minimise waste, ensure that the required amount of milk and the correct size of jug is used. Grind the coffee beans as you need them.



Topic 4 | Equipment maintenance

In order to provide excellent service to customers from the coffee station, it is important that the equipment is cleaned and maintained so it can continue to work to its full potential.

In this topic you will learn about:

4A Cleaning and maintaining equipment

Each business will have a set of cleaning instructions and methods. The equipment manufacturer will also have a list of items that need to be completed as part of the maintenance regime.

4A | Cleaning and maintaining equipment

Cleaning and maintaining your equipment, including the grinder, espresso machine and its attachments, is crucial to making good coffee.



Proper maintenance of the espresso machine, along with frequent and thorough cleaning are important processes. If this does not occur, there will be a change in the flavour of the coffee. Ground coffee grains can be found in equipment and the coffee beans can leave a residue of oil. At the end of service, the machines need to be thoroughly cleaned to remove these residues. The grinder can be emptied and cleaned for the same reason.

All espresso machines come with the manufacturer's instructions, which outline how to operate and clean the machine properly.

Always ask your manager for advice before you proceed if you are ever unsure how to clean the equipment. This will prevent possible injury from hot items and moving parts, and will help to protect the machine from damage.

Daily cleaning tasks include:

- Purge and wipe steam wands after each use with a clean, damp cloth. Clean the steam wands more thoroughly at the end of service.
- Wipe down all machine surfaces with a damp cloth.
- Remove filter baskets from group handles.
- Soak them in a jug with a small amount of cleaning chemicals and hot water for approximately five minutes.
- Polish the filter screens and group handles, then replace the filter baskets.
- Use the blind filter basket to purge the group head with water. A fine brush or sponge can then be used to wipe over and remove old grounds.
- Remove all the cups and glasses from the top of the machine, as well as the cup-heating screens.
- Polish the top of the machine.
- Clean the screens using a sanitising spray, then polish and replace them.
- Flush the group head without the group handle in place by allowing water to flow through it.

Basic cleaning and maintenance

Chemical clean of group heads

The following is a general process of the back-flush. (Note: the process will vary according to the instructions for particular chemical products.)

1. Place a measure (recommended amount) of the chemical powder in the double group handle with the blind filter and secure on the first group head.
2. Manually run the coffee machine for approximately 20 seconds. This back-flushes the cleaner into the shower screen area. Repeat the process if necessary, until the solution looks clean.
3. Empty the solution from the group handle. Back-flush the machine with clean water until the water runs clear.
4. Repeat the process for the other group heads.
5. Remove the blind filter. Clean the group handle and replace with a filter basket ready for the next service.

Steam wand clean

1. Remove the steamer rose from the steamer wand and check for blockages. Soak the wand in hot water for a short period to loosen any milk residue. Clean thoroughly and replace the rose on the steam wand.
2. Purge the steam wand.
3. Wipe the steam wand with detergent to clean.

Cleaning the machine

1. Turn on hot water to clean the drainage pipes.
2. Turn the machine off.
3. Remove the drip tray from the machine, wash it with detergent, rinse and polish dry with a clean cloth.
4. With the drip tray removed, check that the waste pipe/drainage hole is clear. Flush with clean water if required.
5. Wipe underneath the machine and replace the drip tray.
6. De-pressurise the coffee machine by turning on both steam wands.
7. Wipe over the front, sides, top and splash-back of the machine with sanitising spray and polish with a clean cloth.

Watch this video [00m:58s] to learn about cleaning the group heads with chemicals.



Watch this video [00m:32s] to learn about cleaning the steam wand.



Watch this video [00m:50s] to learn about cleaning the machine.



Safety data sheets

If you need to use chemicals to clean equipment, you need to know about safety data sheets (SDSs).

An SDS is used to document information about hazardous chemicals and how they affect the health and safety of yourself and others.

Your workplace may have different documents or diagrams that explain how to use the chemicals safely. You must read and understand the documents because they outline important information on the product, as well as supplier information. A supervisor or manager may provide training on the safe and correct use of chemicals at work.

Here is a list of information that an SDS can include:

- hazards
- first-aid measures in case of accident or misuse
- exposure controls or recommended personal protective equipment (PPE)
- fire-fighting measures
- handling and storage of hazardous chemicals
- physical and chemical properties
- toxicology
- ecological information
- transportation requirements.

You can view an example of an SDS via this QR code or via this link:

- <http://chilp.it/945631e>



Water filtration system

A water filtration system helps the machine to operate better, which will improve the quality of the coffee.

The filter system is installed at the same time as the espresso machine. The filter system requires monthly and yearly maintenance to ensure it is working correctly. Every month, the cartridges for the inline water filtration system must be checked and cleaned.

Remember to refer any faults and potential maintenance issues to your supervisor or manufacturer. A water filter system is designed and installed to reduce the following problems:

- Sediment reduction: small particles can become suspended in the water and can give the water a cloudy appearance. Algae spores, as well as small particles of dirt, sand and rust can enter the machine, affecting performance and altering the coffee taste.
- Chemical reduction: chemicals such as chlorine will negatively affect the taste, appearance and odour of water used for coffee.
- Elements reduction (also called total hardness (TH) reduction): magnesium and calcium salts occur naturally in water. Salts like these can precipitate to form a scale or crust. This scale occurs on the surface of the boiler, heating elements, valves, solenoids and pipes where the water flows. This can result in machine failure if it is not treated.

Clean and maintain the grinder

You need to clean the grinder at the end of the service period.

Here is a list of the daily tasks to complete as part of the grinder cleaning and shut-down process:

- Remove coffee beans from the hopper and store in an airtight container in a cool, dry place.
- Clean the bean hopper in mild, soapy water and dry.
- Use a brush to remove used grounds from the blades, being careful of sharp edges.

- Empty the dosing chamber of ground coffee. This can be saved for the next day of service.
- Use a brush to remove used grounds from the dosing chamber.

There is very little maintenance that needs to be (or can be) performed on the coffee grinder. The main aspect of maintenance is a weekly check and thorough cleaning of the grinder blades. The manufacturer's instructions need to be followed carefully because cleaning the grinder blades involves pulling apart and replacing some parts of the machine.

Symptoms and solutions of faults

The espresso machine and grinder may develop faults that could affect the quality of the coffee or become a safety concern.

Before the first service of the day, check the grinder and espresso machine to ensure they are operating correctly and to identify any faults.

Test extractions conducted throughout service also help to identify faults in the equipment. Faults in the machines must be reported to a supervisor because they may require a service call from a technician if they cannot be resolved by in-house staff.



Symptoms

1. Machine has lost pressure or temperature.
2. Machine is leaking water.
3. Water delivery from the group head is slow.
4. Grinder is producing inconsistent grind.

Causes

1. Machine may have been switched off or shut down due to fault.
2. Waste pipe is blocked or kinked.
3. Group head jet is blocked.
4. Grinder blades are worn or damaged.

Solutions

1. Check power switch is on.
2. Check waste and remove kink or unblock.
3. Back-flush group head with blind filter basket.
4. Replace grinder blades.

If faults are unable to be resolved, contact a supervisor or technician.

End-of-service duties

The end-of-service duties may be performed by a team or may be the responsibility of one staff member.



Here is a checklist of duties conducted at the end of the service period:

- Refill all containers, such as the chocolate powder shaker.
- Restock the milk fridge.
- Restock the drink fridge, if applicable.
- Restock all cups, napkins, spoons, etc.
- Perform cleaning and maintenance procedures on the espresso machine and grinder (as discussed earlier).
- Wipe down and sanitise all surfaces.
- Place all coffee items in their correct storage areas and store left-over coffee beans in an airtight container.
- Take out rubbish, recycling and compost (coffee grounds can be used in compost).
- Mop the floors, including the work area.
- Report any issues.

Environmental considerations

There are several ways to reduce environmental impacts when making and serving coffee.

Consideration should be given to how cleaning is performed and how spent coffee grounds are disposed of. Always use correct and environmentally sound methods to dispose of waste that comes from making coffee.



Here are some ways to reduce environmental impacts:

- Turn off the espresso machine when the business is closed. Some machines have a power-saving mode.
- Ensure the espresso machine has an insulated boiler to retain heat.
- Conduct regular maintenance of the espresso machine to ensure it is running to optimum efficiency.
- Ensure there are no water leaks from pipes, boilers or plumbing.
- Always use the correct amount of ground coffee and milk (in the correct sized jug).
- Encourage customers to bring and use reusable cups for takeaway coffee beverages.
- Compost used coffee grounds.
- Use coffee grown by organic growers.
- Recycle plastic and cardboard milk containers.
- Wash used coffee cups and glasses as soon as possible so they are easier to clean.
- Use environmentally friendly chemicals.



Activity 13: Clean and maintain equipment

Check your understanding of cleaning and maintaining equipment.

Question 1 Draw a line from the beginning of each sentence to match the correct ending.

- | | |
|---------------------------|---|
| * Environmental impact | * gives information on hazards and first-aid measures for chemicals. |
| * A supervisor or manager | * can be reduced by disposing of used coffee grounds in a compost bin. |
| * A safety data sheet | * can be saved by turning off the espresso machine when the business is closed. |
| * Energy | * may provide training on the safe and correct use of chemicals at work. |

Question 2 Which of the following are correct? Circle true or false for each statement.

- | | | |
|---|--------|---------|
| a. The whole machine is wiped down daily with a sanitising spray and polished with a clean cloth. | * True | * False |
| b. The steam wand is purged and wiped after each use. | * True | * False |
| c. Cup-heating screens are cleaned daily using a sanitising spray. | * True | * False |
| d. The grinder blades must be removed and cleaned daily. | * True | * False |
| e. Empty the bean hopper of the grinder and wipe out using mild, soapy water, then dry. | * True | * False |
| f. Use a brush to remove used grounds from the grinder blades. | * True | * False |
| g. A water filtration system will help to remove sediment from the water. | * True | * False |
| h. Any fault in a machine requires a technician to be called. | * True | * False |

Click to complete Activity 13



Read the following workplace example to see how the concepts you have learned are applied in a real-life situation.

Workplace example for Topic 4

It's now 4.30 pm at Maples Cafe and time to close down the cafe. Cody can now shut down the machines and do a final clean of each one, ready for service tomorrow.

First, Cody purges the steam wand and takes off the nozzle. He thoroughly cleans this with detergent and wipes it clean. He then checks the steam flow is working properly.

Before he back-flushes the group head with chemicals, Cody considers the training and instructions given to him by his supervisor about handling chemicals at work. The detergent is mild, but Cody has sensitive skin, so he is careful not to get any of the substance directly on his skin. When Cody empties and drains the drip trays, he notices the drainage pipe is quite stained, so he pours down some hot water while the tray is removed to see if he can clear this.

The machines have been in use non-stop today, so there are splashes of coffee all over the stainless steel. Cody gets busy with a polishing cloth and wipes down the whole machine. This includes removing the serviceware from the top so he can polish the top of the machine. It now looks brand new; shiny and clean.

He takes all the removed filter baskets that have been soaking in warm soapy water. He dries them off and puts them back into the group handles. He puts some of the group handles in the drawer and others into the group head ready for tomorrow.

Now he can turn the espresso machine off. As the machine is plumbed into the wall, he does not turn off the water. He also de-pressurises the machine by turning on both steam wands. Cody does this, and turns them off when steam is no longer coming out of the wands.

Now Cody cleans the grinder machine. He removes the coffee beans remaining in the bean hopper and places them in an air-tight container. He then washes the bean hopper in mild soapy water, rinses and dries it thoroughly, using a brush to remove used grounds from the grinding blades. He empties the dosing chamber, and saves this ground coffee for the test extractions in the morning. He then brushes out the dosing chamber.

Cody is happy his two machines are clean ready for tomorrow's trade. He can now get onto his other duties: restocking supplies and small equipment; wiping down benches and surfaces; taking out rubbish; and adding used grounds to the compost. Finally, he does a sweep and mop of the coffee station area.

He can now go home!





Summary of Topic 4

1. Daily maintenance of the machine is important to maintain the quality of coffee.
2. A chemical clean and back-flush of the group heads helps to remove used coffee grounds.
3. You may need to refer to information provided by your workplace or safety data sheets (SDSs) to safely use cleaning chemicals.
4. A steam wand clean is carried out to clean and remove milk residue from the wand and nozzle.
5. A water filtration system helps the espresso machine to operate better, which will improve the quality of coffee produced.
6. Clean and polish the machine to ensure no spills or splashes remain.
7. Cleaning the grinder involves emptying the hopper and dosing chamber.
8. Part of your end-of-service duties may involve restocking supplies.