Learner guide

Prepare and serve espresso coffee

SITHFAB005
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**Please note the following condition**

This Didasko learning resource should be used as a training tool for students and trainers. While the information contained within addresses the elements and performance criteria, and the knowledge and performance evidence of individual competencies it remains the responsibility of the training organisation to ensure it meets training framework requirements and to provide additional documentation where necessary.
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Overview

Australians love coffee!

We drink around one million cups of coffee each year. This means a lot of beans to grow, pick, roast, grind and extract into coffee. It also means a lot of cups, saucers and teaspoons to be washed, dried and stacked, and litres of milk to be stored and chilled.

Australia has a significant ‘coffee culture’. Regardless of whether you make or serve it, you will be judged on the quality and consistency of the coffee you prepare.

Coffee is enjoyed on its own, with a snack, a cake, a meal, or, as it was traditionally served, after the meal.

But if you serve a terrible coffee after a great meal, what do you think the customer will remember from their evening?

The secret to making good coffee is determined by the skill of the barista. Baristas have turned making espresso coffee into an art form. Their skill can make all the difference between a satisfied or dissatisfied customer.

There is a lot to learn about making an espresso, so let’s begin.

Let’s look at what you will learn on completion of this unit.

Section 1: Organise coffee workstation
Section 2: Select and grind coffee beans
Section 3: Advise customers and take espresso coffee orders
Section 4: Extract and monitor quality of espresso
Section 5: Undertake milk texturing process
Section 6: Serve espresso coffee beverages
Section 7: Clean espresso equipment
Section 1: Organise coffee workstation

In this section you will learn the following.

- How to complete mise en place for coffee service.
- How to place ingredients in correct containers and conditions.
- How to prepare the espresso machine and grinder for service.

What are the different components of the espresso machine?

Espresso machines all have differences depending on the manufacturer of the machine. However, they all have essentially the same features and functions. Let’s look them.

This machine has 10 components to identify. Click on each of them to find out what they’re called.
What are the different components of the grinder?

The same applies to grinders. However, the features and functions are essentially the same for all the different brands of grinders.

This grinder has six features and functions to identify. Click on each of them to find out what they’re called.

![Grinder components diagram]

Conical container or hopper
Grinding blades
Dosing chamber
Tamper (attached)
Lever
Tamper (manual)

How do you set up the coffee workstation?

*Mise en place* (glossary) is essential for serving good espresso coffee efficiently.

Click on the pictures to see the steps for setting up a workstation.

Step 1: Turn on the machine.

Step 2: Collect equipment.

Step 3: Fill the hopper with coffee beans.

Step 4: Have a supply of extra beans.

Step 5: Prepare serviceware.

Step 6: Check for sufficient quantity of milk, foaming jug(s) and a thermometer.

Step 7: Fill chocolate powder.

Step 8: Have available a supply of colour-coded cleaning cloths.

Step 9: Have available a supply of napkins/serviettes.

Step 10: Check for sugar and sugar substitutes.
Step 11: Clean teaspoons and dessert spoons.

Step 12: Clear bench space for serving.

Step 13: Have available a container or drawer for used coffee grounds.

Step 14: Check optional items.

Step 15: Check your area is ready for customers.

Let’s look at each of these steps in detail, including safety and hygiene considerations. Click to the next screen for step 1.

**Step 1: Turn on the machine**

Machines take about 20 minutes to reach the operating pressure to extract (glossary) the coffee. The pressure gauge on the machine will indicate when it has reached the required operating pressure. The boiler pressure should be 1 to 1.5 bars and the pump pressure around nine bars.

Refer to your machine’s operating manual. Each machine may differ as to heating times and operating pressure.

**Step 2: Collect equipment**

Getting all the equipment ready is essential for making great coffee. Organising your equipment and yourself will help you sequence the preparation of your coffee so customers can be served efficiently. Hunting for a tamper or a spatula whilst in the middle of making coffee will end in a coffee-making disaster!

Click on the pictures to see some of the equipment you’ll need.

- Blind filter for cleaning the espresso machine.
- Cleaning brushes for the machine and group head.
- Spatula for ‘levelling-off’ the dosed filter basket.
- Timer or stopwatch for extraction (especially when learning).
- Service trays.
- Storage bins and rubbish bins.
- Tamp mats and a tamper.
- Milk foaming jugs and thermometer
- Napkins
- Powder shakers (chocolate, cinnamon)
- Stirrers, straws and spoons
- Colour-coded cleaning cloths
- Take-away cardboard trays
Step 3: Fill the hopper with coffee beans

Fill the hopper with fresh coffee beans at the beginning of each shift. It is best to only fill what you might use for that session. If they are not all used, the beans start to lose their freshness. This then results in poor quality coffee.

Coffee beans should not be left in the hopper overnight. Any leftover beans should be stored in an airtight container.

The grinder should be close to the coffee machine. One easy movement from the espresso machine is best.

Step 4: Have a supply of extra beans

Newly purchased and freshly roasted beans are the key to the freshest coffee; make sure you have a good supply close by. Much of the flavour is lost in pre-ground coffee.

Beans should arrive from the distributors in vacuum-sealed packs. Make sure you also have fresh decaffeinated coffee available.

Step 5: Prepare serviceware

Serviceware includes cups, saucers, mugs and glasses. The styles will vary from one establishment to another. Stack serviceware on top of the machine according to shape and size. The top of the machine is heated allowing the cups, mugs and glasses to stay warm before use. When hot coffee goes into a heated cup, it remains heated for longer.

Always check for chips, cracks, lipstick marks and coffee stains. Don’t stack cups, mugs and glasses too high.

Click on the pictures to have a look at the different styles.

Latte glass
Used for café latte, long macchiato.

Demi-tasse
Used for short black (may be a glass or cup).

Double espresso cup
Used for flat white, long black and cappuccino.

Mugs
Used for extra-large coffees

What’s some other very popular serviceware?

Don’t forget your take-away cups, lids and trays. Many establishments make hundreds of take-away coffees each day so you need a good supply of cups (different sizes), lids to match, and trays for customers to carry them.
If you have room to set them out you may even pre-mark the take-away lids with the beverage type. For example, FW for flat white, L for latte, M for mocha and LB for long black etc. It can save time when you’re busy.

**Step 6: Check for sufficient quantity of milk, foaming jug(s) and a thermometer**

Keep a supply of fresh milk in the refrigerator close by to the espresso machine. Check the use-by date on the milk and rotate it so that the older milk is used first. Ensure it is kept chilled. Quantities will be determined by demand. You’ll need full cream, light and soy available, to meet a variety of customer requests.

![Click on the icon to find out more.](image)

Have a selection of stainless steel, straight-sided containers available. The smaller jugs are for heating milk for one cup. The larger jugs are for two or more cups. Keep a separate jug for the different milk types.

A thermometer will ensure the milk temperature is correct. The thermometer clips onto the side of the jug. Once proficient at heating milk, you may not need it.

**Step 7: Fill chocolate powder container (shaker)**

You sprinkle chocolate on top of the cappuccino and hot chocolate. Choose a good quality chocolate powder from your coffee distributor and fill your shaker when low. Empty the contents and wash the container in hot water regularly. This removes chocolate buildup and unblocks shaker holes.

Some establishments also like to have a separate shaker for cinnamon as well.

**Step 8: Have available a supply of colour-coded cleaning cloths**

Keep a supply of clean cloths for wiping benches, the filter basket and cleaning the steam arm on the espresso machine. Wash in clean soapy water and allow to air dry. No-one wants coffee grains in their foamed milk!

Hygienic practice means using separate cloths for each task. Don’t wipe the bench with the same cloth you use to wipe the steam arm. A good technique is to have a different coloured cloth for each task so they don’t get mixed up.
Step 9: Have a supply of napkins or serviettes

Click on the icon to find out how this step may be applied.

In some establishments, it is standard operating procedure to serve a napkin with the coffee.

Napkins should never be wrapped around the glass to prevent customers burning their fingers. If the coffee glass is too hot to touch, it’s likely you’ve burnt the milk.

Follow your establishment’s procedure and serve each coffee in the same consistent way.

Step 10: Check for sugar and sugar substitutes

Sugar satchels can either be served on the saucer with the coffee or in containers on the table. Traditionally, coffee is served with white sugar, so make sure you have a well-stocked supply. Raw sugar grains or cubes are also commonly served. Again, follow establishment procedure. Don’t forget that you also need sugar substitutes like ‘Equal’ or ‘Sweet’N Low’ available.

Step 11: Have available clean teaspoons and dessert spoons

Teaspoons seem to disappear in most establishments. So, before you start, make sure you have a full container of teaspoons and restock them regularly. Place them next to your saucers for easy access. Ask management to purchase more when stocks run low. Wash thoroughly through the dishwasher and check for lipstick marks. Make sure teaspoons are dry before placing them on the saucer.

While some baristas don’t require the use of dessert spoons to help pour the milk, they are helpful when learning. Have a couple on hand for pouring.

Step 12: Clear bench space for serving

Once you have extracted the coffee, you need space to remove the cups from the espresso machine to add the foamed milk. In some establishments the coffee area can be quite small. You will lose a lot of time if you only have enough bench space for one at a time.

Click on the pictures for some tips you can follow.

- Keep the area clean and safe.
- Clean up after making each coffee.
- Keep area uncluttered so you have plenty of room.
- Put things away once you have used them.
**Hot tip**

Working in a cluttered space is dangerous, often resulting in milk or coffee burns. Get yourself organised!

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**Step 13: Have available a container or drawer for used coffee grounds**

The used coffee removed from the filter basket after extracting the coffee is called a ‘puck’ or ‘cake’. Due to the pressure exerted on the coffee in the filter basket, the puck does not fall easily out of the holder. You need to knock it out using some force.

![Click on the icon to find out more.]

There will be a drawer/box/container with a rubber, nylon or wooden rung on which to bang the upturned group handle to remove the used coffee. Don’t knock the group handle too hard, as this may damage the filter basket within the handle.

Empty the drawer or container at the end of each shift. Wash out the container or drawer regularly to prevent mould growth.

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**Step 14: Check optional items**

Most establishments provide takeaway coffee. Make sure you have sufficient supplies of cups, lids, stirrers, straws and take-away cardboard trays to accommodate demand.

Don’t forget to be environmentally friendly and purchase biodegradable cups and lids, not Styrofoam.

You’ll also need marshmallows for the kids’ hot chocolates and baby cinnos. You may also need chocolate and coffee syrup pre-made for iced or liqueur coffee and iced chocolates. Prepare according to demand.

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**Quick thinking**

It is important to be ready to serve customers when they start to arrive.

You have 30 seconds to list some questions you would ask yourself to ensure you are ready to open and serve customers.

![Click start to begin.]

List some questions you would ask yourself to ensure you are ready to open and serve customers.

How did you go? Compare your answers to the next screen.
Step 15: Check your area is ready for customers

You have prepared your workstation. Now, pretend you are the customer. What do they need?

Click the icon to find out what questions you should ask yourself.

- What does the customer see when they walk in?
- Is everything clean and tidy from their point of view?
- Are the tables and chairs neat and clean?
- Is there a menu available for them to order from?
- Is the machine ready?
- Is there an aroma of freshly made coffee?

Ensure you have answered these questions and made any adjustments needed.

Now, you are ready to get started with preparing and serving espresso.

What is the best way to look after ingredients?

All ingredients should be stored in correct containers. You want to keep the quality ingredients fresh. Selecting the right containers and storage conditions is crucial.

Click the icons to see the best way to look after ingredients.

**Unused or leftover coffee beans**

These beans should be placed in a clean airtight container and stored in a cool, dark place. The container should be labelled and dated to help with stock rotation.

**Unopened bags of coffee beans**

Coffee beans are usually stored in a cool, dark place such as a cupboard. It is crucial that they are stored away from any heated area. They should be rotated.

**Unused ground coffee from the dosing chamber**

Any leftover coffee from the shift before should not be used to make new espresso. Ground coffee starts to lose its quality over time. This can be used to *season the machine* (glossary) rather than using fresh coffee that would otherwise go to waste. Store the ground coffee in a container that is clearly labelled. This prevents the coffee being mixed up and possibly served to customers.

**Tea bags**

Tea bags should be stored in a cool, dark place in a clean, sealed container. There are different flavours and they should be stored in separate containers to avoid the flavours combining.
Serviceware
Any spare serviceware such as cups, saucers, mugs, glasses, takeaway cups, takeaway lids should be stored in the dry storeroom. Keep the items covered or in their packaging to avoid any contamination.

Garnishes
Most edible garnishes should be used on the day. If there are garnishes in good condition that could possibly last until the next shift, they must be wrapped and refrigerated below 5 °C.

Flavourings or syrups
These should be stored in the refrigerator with their lids on.

Milk and cream
Milk and cream should be stored in the refrigerator, placing the oldest date at the front to be used first.

How do you prepare the espresso machine and grinder for service?

Click on the numbers to find out the correct sequence.

1. Turn on the machine and check both the boiler and pump pressure gauges.
2. Press the coffee dispenser button on the front of the machine to run water through the group head and check that the water spirals out. Do this for each group head.
3. Lock the group handle (glossary) into the group head and run approximately 60 ml of water through each. This helps flush out the water that has been sitting in the pipes overnight and it heats up the group handles.
4. Turn on the steam arm to full pressure and release steam for 30 to 40 seconds.
5. Turn on the water outlet and remove about 1 L of water from the boiler so that clean fresh water begins to fill the boiler.
6. Leave the machine for approximately 20 minutes to build up pressure. During this time you can prepare the grinder.
7. Fill up the hopper with fresh coffee beans.
8. Grind a small amount of coffee into the dosing chamber.
9. Once the espresso machine is ready, check the grind by measuring out a double shot of coffee into the filter basket and make two espresso coffees. Check the extraction rate (glossary). Industry recommended rate is 30 ml extracted in 27 to 32 seconds, depending on the type of espresso coffee ordered, customer preference and the coffee blend.
10. Adjust the grind if necessary (we will look at this in Section 2).
In a nutshell

Run espresso through each group head at least three times before serving coffee. The espresso machine will reach peak operating temperature after approximately ten espresso coffees have been extracted and all cold spots have been warmed.

Why use planning and organising skills in your work?

Planning and organising helps you efficiently sequence the stages of coffee preparation. If you and your team manage yourselves well, you can work more quickly. This not only reduces your stress but results in quicker service to the customer.

Click on the icon to find ways to be more efficient in the workplace.

- Plan your shift. Ask yourself, what do I need to do to prepare the machine, grinder, coffee?
- Set up all equipment you need.
- Prepare any ingredients for what you’ll need throughout the shift.
- Identify how much time you have to allocate to preparation.
- Prioritise yours tasks.

End of section

You have reached the end of section 1.

Click to the next section to continue.
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Section 2: Select and grind coffee beans

In this section you will learn the following.

- How to select and grind coffee beans.
- How to complete test extractions before service.
- How to adjust grind throughout the service period.
- How to monitor efficiency of grinder for dosage and grind.
- How to clean grinder.

Why is the grinding process important?

The grinding process is crucial to good coffee.

Click on the icon to find out more.

Well ground, inferior quality coffee can actually taste better than the badly ground, premium coffee variety. To get the fine grind required to produce good quality espresso, you will need a conical shaped grinder.

A good commercial grinder costs between $1000 and $3000. Which one you need depends on the amount of coffee being made each week.

It is important to keep up with the latest technology with grinders. Go to trade shows or speak with your coffee supplier.

What are the components of a grinder?

Let’s go over the various parts of the grinder again in more detail.

Click on the icons to find out more about the grinder parts.
Conical container or bean hopper
Should be tinted to reduce sunlight. Also conical in shape so beans are channelled down to the blades.

Dosing chamber
Collects the ground coffee.

Lever
The lever dispenses the coffee measure. If your grinder is set correctly, each flick of the lever dispenses one shot of 7 g. This is the amount required for one espresso.

Tamper (attached)
To ensure the best extraction, press evenly to pack the coffee into the filter holder.

Tamper (manual)
Some people prefer to use a manual tamper for ease of exerting greater pressure.

Grind adjustment
Allows you to adjust the grind if coffee is too fine or coarse.

Grinding blades
Blades are flat or conical. The grind will vary according to how far apart the blades are. You must check the blades regularly and ensure they are replaced when worn.
How can you get the best coffee?

When combining several types of coffee beans from numerous parts of the world, you have the best blend of coffee one could imagine. All the beans create different qualities and characteristics. Combined, they create the aroma and flavour of great coffee.

Click on the icon to find out more.

Coffee houses source and roast their beans according to a style of coffee synonymous with their brand name. Every time you drink a coffee style from a particular coffee house, it should taste the same. How the coffee is made, the type and quality of machine and its operator, all have an impact on the taste of the final product.

Most coffee houses use their premium blend for commercial machines, to ensure their brand name coffee always tastes the same. The flavour from one coffee house to another is quite significant.

Over the next couple of weeks, take note of the brand names and see if you can identify the differences.

Coffee is ground differently depending on whether you are using it for espresso, plunger or filter coffee. Espresso is the finest ground of the three types. Your coffee supplier will guide you as to the style of coffee preferred and which coffee will complement the type of machine you have.

What are the different types of beans?

There are about 60 different species of *Coffea* but the two most widely known are *coffea arabica* and *coffea robusta*. Many coffee houses use mostly *arabica* with a small percentage of robusta. Some coffee houses blend only three varieties of beans, others blend up to 14.

Click on the icons to find out more about the different blends.

**Blends**

Blending so many varieties, believe it or not, helps with flavour consistency of the final product. For example, if a bean plantation in India fails and you only have three varieties in your blend, a large percentage of your blend will be affected. If you have 14 varieties, the effect is not so great, and adjustments to the other bean types can be blended to maintain consistency.

**Coffea arabica**

*Coffea arabica* is a fine quality greenish blue bean and grows in soils that are rich in minerals and maintain a constant temperature of 20 °C. It is best grown in altitudes above 600 m.

The characteristics of *coffea arabica* are that the coffee is sharp, sweet, aromatic, full-bodied and lower in caffeine.
**Coffea robusta**

Coffea robusta is a smaller bean, roundish and brownish in colour. It yields more abundantly and is more adaptable and disease resistant. Because it is so hardy it will grow in climates such as Africa and Asia which are unsuitable for arabica.

Young plants do not bear fruit for two years. Once they begin, the average plant can yield up to 700 g to 800 g of coffee in its 15- to 20-year life span.

The characteristics of coffea robusta are that the coffee has a strong character, high caffeine and a chocolate flavour.

**What are the different types of roasts?**

There are four colour categories. Always try the coffee or chat with the supplier before you buy as there can be a world of difference between roasts.

Click on the icon to find out about the different types of roasts.

**Light roasts**

This roast is light brown in colour and produces a mild flavour. The beans are not oily as they have not been roasted long enough for the oil to break through the surface.

- Light City
- Half City
- Cinnamon
- New England

**Medium roasts**

This roast is commonly called the American roast as it is popular in the US. It has a stronger flavour than the light roast beans.

- City
- American
- Breakfast

**Medium to dark roasts**

For the medium to dark roast the surface of the bean may be slightly oily. The bean is a rich dark colour and can have a slight bittersweet aftertaste.

- Full City

**Dark roasts**

This roast produces beans with a pronounced bitterness and oily surface. The darker the roast the less acidity will be found in the coffee.

- High
- Continental
- New Orleans
- European
- Espresso
- Viennese
- Italian
- French
How do you achieve the correct grind?

Get your coffee supplier to take you through the grinder set-up and adjust the grinder to achieve the correct dosage. It’s one of the most important factors in achieving the perfect espresso. Once you go through this process with them, you will be able to adjust the grinder yourself when required.

Click on the icons to check out some tips that will help ensure correct grind.

- After grinding, hold some coffee in your fingers and feel it. The grind should not be too powdery. It should have a slight grittiness. If it is smooth and powdery, it’s too fine.
- Measure out 14 g of coffee (using electronic scales is the only way to do this accurately) and place in a double group head and tamp it (we will look at this in Section 4). Lock the group handle in and activate the machine. There should be a 4 to 5 second delay before the coffee begins to flow. Less than five seconds the coffee ground is too coarse and more than five seconds it is too fine.
- When the grind is correct, the crema (glossary) should be a thick honeycomb colour. A good way to test the thickness is to place sugar on top. The crema should support sugar for a few seconds before sinking. If the crema is pale and thin, the coffee has been ground too coarse; if too fine, it will be very dark.
- Different roasts require different timing and extraction. When the coffee is correctly ground, a single shot of espresso (made with 7 g of coffee) should take approximately 27 to 32 seconds to run through. If it is slower, the grind will be too fine. If it is faster, then it will be too coarse. There are many opinions about the time it should take, so talk to your supplier about your machine.

Note

Once you become proficient at dosing the coffee into the group head you will be able to do it by sight. Always do some random checks though, to make sure your single dose is in fact 7 g and the double dose 14 g.

How do you adjust the grinder?

Click on the icon to find out how to make an adjustment to the grind.

- Unlock the catch on the grinding collar and rotate clockwise or anti-clockwise according to the instructions on the collar. (Note: ‘Grosso’ means coarser; finer is ‘fine’.)
- Turn the collar one notch at a time and lock in.
- Grind off some coffee for about ten seconds and discard. This will be old coffee from the previous setting.
- Grind another 7 g of coffee into filter basket, tamp and extract 30 ml of coffee.
- Once the extraction rate is close to 30 ml in 27 to 32 seconds, then only make adjustments notch by notch on the grinder collar.

Click on the icon to see an example of how this is done.
**Note**

Ensure you discard the coffee from the previous adjustment, as you don’t want them mixing together. Otherwise, it will make it hard to see if the grind had been adjusted properly.

**Do you have to keep adjusting the grind?**

Once you have achieved the correct extraction rate, don’t assume you can leave it like that all day. It will change.

Click on the icons to find out why.

**Environment**

Because coffee is *hygroscopic* (glossary) it absorbs moisture. If it’s a humid day, the coffee absorbs more moisture and packs tighter into the filter head, and extraction time will take longer. Of course, when it is hot and dry, the opposite will happen. Either way the grinder must be adjusted.

For the freshest coffee, only activate the grinder prior to making your coffee. This protects the coffee from the oils in the beans which, when exposed to the air, oxidise and make the coffee stale.

**Blade wear**

Blades wear out after constantly grinding beans. If the ground coffee feels very gritty blades probably are worn. As the blades wear, the grind setting will gradually move to the fine direction on the collar, but the coffee will still be coarse. When you hear the blades touching, they are completely blunt.

Ask your supplier or technician to show you how to easily change the blades. When you change blades the grind must be reset. To do this, you turn the motor on (with no coffee grinding) and adjust the blades to a finer setting until you hear them touching. Then turn off the motor and adjust the collar four numbers coarser. This is the starting point for setting the grind.

Only an experienced barista should be responsible for making grinder adjustments.

**Old machinery**

A poorly maintained or unclean machine affects extraction time and dosage. Always make sure that a technician services your machine regularly.

**Note**

Have a set of electronic scales when adjusting the dose. If you don’t have a set of electronic scales, you need to visually assess the dose.
How do you dose by sight?

Overfill the filter basket by flicking the lever until you have a mound of coffee in the handle. Level it out without applying any pressure. Do this with your finger backwards and forwards across the handle or tapping off the excess coffee. Then tamp and extract the coffee, aiming to achieve a run of 27 to 32 seconds. If you need to adjust the dose, adjust the collar on your grinder as previously shown.

How do you monitor efficiency and resolve or report issues?

It is important to monitor how your equipment is working. When grinding coffee beans here are some things to monitor.

- How long does it take for the coffee to grind?
- Does the dosing chamber allocate enough coffee when the lever is pulled?
- Is the grind too coarse?
- Is the grind too fine?
- What quantity of coffee beans is being used to produce the espresso?

If there are discrepancies in these areas, some can be fixed by an experienced barista. The others should be fixed by a technician.

In all cases, if there is an issue with the machine, you should report the matter to a supervisor immediately. Using the grinder when it is not working properly can cause serious damage to the equipment.

How do you clean the grinder?

The hopper, dosing chamber and grinding blades should be cleaned each day. Putting away all leftover beans and storing leftover ground coffee should be done first.

The grinder will require a brush down to remove coffee grounds from all the nooks. The hopper should be washed in hot water and if you are using a detergent, make sure it's a really mild one, or it will affect the oils of the coffee beans.

More information on cleaning the grinder will be discussed in section 7.

**In a nutshell**

As a barista, you must be able to maintain a correct extraction rate by maintaining correct grind. This is crucial in making a good coffee every time.

A good grinder and how it should be set up is just as important as the coffee machine. So make sure you learn how to use it properly.
End of section

You have reached the end of section 2.

Click to the next section to continue.
Section 3: Advise customers and take espresso coffee orders

In this section you will learn the following.

- How to provide information and recommendations about coffee beverages.
- How to identify customer preferences and take orders.

Where did coffee originate?

There are lots of legends surrounding the origins of coffee.

None are better than the story of the Arabian goat herder who found his goats dancing joyously around after eating berries from a small green-leafed shrub. It was discovered that the bright red cherries caused a peculiar euphoria in his goats. He tried the berries and discovered the effect himself.

On a more botanical level, evidence suggests that the coffea arabica (coffee plant) originated in central Ethiopia, was bought to Yemen and has been cultivated since the 6th century.

Others believe it was cultivated by the Turks.

Whatever you believe, the fact is that coffee can now be found almost anywhere in the world and is grown today mostly in Central and South America, the Caribbean, Asia and Africa.

Since the middle of the 19th century, coffee has been one of the world’s most important trading commodities and today the global coffee economy is worth over $50 billion.

What are the different coffee species?

The best known coffee species are *coffea arabica* (60% of world production) and *coffea robusta* (40% of world production).

Australia imports coffee from all over the world including Indonesia, Papua New Guinea, Brazil, Vietnam, Thailand, Philippines, Colombia and India. Since the 1880s Australia’s coffee production has been increasing. Current production comes from Queensland and northern New South Wales.
What are the different coffee styles?

The espresso styles originated in Europe and have been adopted all over the world. Over time, different countries have adapted these standard styles to suit their own preferences. For example, Australia has followed the American adaptation of serving super-sized coffees in mugs.

Click on the icons to check out the different coffee styles.

**Espresso**

Pronounced *ess-press-o*, an espresso is a short black coffee made in a small cup or glass. It contains strong, hot black coffee, 30 to 35 ml, with a honey tinged thick head of crema. An espresso is often consumed very sweet, so make sugar available.

**Standard long black**

The standard long black is a milder strength coffee. It is made up of 30 ml espresso and 60 ml (two-thirds) hot water with a thick head of crema.

**Strong long black**

A strong long black is made in a white china cup with 60 ml espresso and 30 ml (one-third) hot water and a thick head of crema.

**Cappuccino**

Pronounced *cap-er-chee-no*, the cappuccino is served in a cup with 1/3 espresso, 1/3 milk and 1/3 foam. It should display a dense foam-like cap with an optional sprinkle of chocolate on the top. A good cappuccino should have a brown coffee stain around the rim of the cup.

**Caffé latte**

Pronounced *café lart-eh*, the latte is made in a glass using 1/3 espresso and filled with hot milk. Enough room should be left for 10 mm creamy dense foam. A brown coffee stain should appear around the rim.

**Flat white**

The flat white is made in a cup using 1/3 espresso and filled with hot milk. It is served without foam and this is the only difference between it and the latte. A golden brown coffee stain should appear around the rim.

**Macchiato (short and long)**

Pronounced *mack-ee-arto*, the macchiato is served short or long with a dash of hot or cold milk and/or a dollop of foam. Customers may ask to add the milk themselves according to preference. It is served in an espresso cup or glass or macchiato glass. Macchiato is Italian for spotted or stained.

**Ristretto**

Pronounced *re-strett-o*, it is made with the first 15 to 20 ml of an espresso, extracted in 10 to 15 seconds. It is very strong and concentrated in flavour. This is also used as the basis of a ‘weak’ coffee because even though it is concentrated and strong in flavour, once added to milk to make a latte or cappuccino, the coffee is diluted significantly compared to the standard 30 ml serve of coffee. Ristretto is Italian for restricted or limited.
**Mug cappuccino**
Cappuccino made in a mug is made using a double espresso (60 ml), filled with hot milk and topped with foam. It is sprinkled with chocolate (optional) on the top. Even though in a mug, a good cappuccino should still have a brown coffee stain around the rim of the mug.

**Mocha**
Pronounced *mock-a*, the mocha is made in a cup or mug using 30 ml espresso combined with one tablespoon of unsweetened cocoa. It is then combined with hot milk and foam and dusted with chocolate.

**Vienna coffee**
A long black espresso coffee is topped with lightly aerated cream and dusted with chocolate. Served in a liqueur coffee glass.

**Liqueur coffee**
30 or 60 ml of espresso added to 30 ml of liqueur or spirit and sugar syrup (optional), topped with aerated cream and dusted with chocolate or nutmeg. Examples include Irish (30 ml whisky), Jamaican (30 ml Tia Maria), Royale (15 ml rum and 15 ml cognac) and Roman (30 ml Galliano).

**Iced coffee**
When making an iced coffee you can use 30 or 60 ml of espresso coffee in a glass combined with chilled milk, sugar syrup (optional), topped with aerated cream or ice cream and dusted with chocolate.

**Piccolo latte**
Traditionally this is a ristretto shot (15 to 20 ml) topped with warm, silky milk. It is served in a small latte glass. It is also known as a ‘baby latte’. There should be a 10 mm creamy dense foam, and a brown coffee stain should appear around the rim.

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**Note**
To ‘sell’ your product you must have a thorough understanding of the products you offer. Product knowledge requires you to differentiate between the styles and speak to customers in a professional manner.

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**How do you provide information to the customer?**
Good communications skills are important when serving customers. As a coffee attendant you are the link between the customer and the business.

- Click on the icon to find out some important tips to follow.
- Show your customer that you are listening.
- Actively listen and ask open, closed or reflective questions to ascertain the information.
- Display positive body language and use eye contact.
Update knowledge and answer questions correctly about your products.

- Get their order right.
- Make suggestions or upsell.
- Anticipate your customer’s needs and wants.

Let’s look at some of the different customer preferences on the next screen.

What are some of the different styles and customer preferences?

Coffee tastes and styles have changed significantly over time. Twenty years ago, had you asked for a flat white, it was black filtered or instant coffee topped with cold milk and a bowl of white sugar on the side. If you ask for a flat white today in a small country town you would probably get the same. But you won’t get it like that in the city.

The point is, everyone has a different style of coffee that appeals to them, and everyone’s preferences are different.

Click on the icons to see what you may have to consider when taking a coffee order.

**Coffee strength**

Customers may ask for strong or weak coffee. If a coffee is extracted correctly (30 ml in 27 to 32 seconds) it’s a strong coffee. To make a weak coffee correctly, you should extract only 15 to 20 ml of coffee in 10 to 20 seconds and then add milk. This is why there is such a variance in coffee strength from café to café.

**Coffee size**

Customers may choose to drink a latte in a cup, a cappuccino in a mug or a short black in a glass; it comes down to personal preference.

**Accompaniments**

A standard accompaniment with all coffee, sugar comes in a variety of forms: white, brown, crystal, satchel, tablet or liquid. In addition to sugar, establishments should offer sugar substitutes such as saccharine. Other accompaniments may be a chocolate, marshmallows or a syrup flavouring.

**Milk**

Remember when there was only full cream milk? Well, not any more. Customers will ask for skinny, soy or regular milk, so most establishments are obliged to stock all three. You may also get requests for a jug of cold or hot milk on the side. Cold milk on the side is often requested with a long macchiato.

**Decaffeinated coffee**

For various health reasons and preference, more and more people ask for decaffeinated coffee. All distributors sell decaffeinated beans or ground coffee, and this is made in the same way as any other espresso coffee. Decaffeinated coffee is popular in the evenings because many people can’t sleep if they drink a regular coffee late at night.
Serviceware
Your customer may prefer to have their order in a particular style of serviceware rather than the standard style. A long macchiato is served in a cup or a long black in a latte glass.

Blends
Your customer may have a specific blend they prefer of coffee. You may work in an establishment that can offer this. Generally, it is the one standard option or decaffeinated coffee.

How do you take orders?
Make sure you listen carefully, and when relaying the order to the espresso operator, be clear and specific. There are a lot of options of what to order.

Click on the icons to check out just a few of the many options.

- ‘I would like a decaf, skinny latte, please.’
- ‘Can I please have a long black with milk on the side?’
- ‘I would like a short macchiato with cold milk on the side.’
- ‘May I have a double espresso, please?’
- ‘May I have a soy latte?’
- ‘A cappuccino with no chocolate on top, thanks.’

Click on the icon to see how orders can be taken.

- Electronically via a PALM order pad or a touch screen.
- Manually by writing the order on a note pad or by memory.

Hot tip
Each establishment may have abbreviations for the different coffee styles, for example, ‘FW’ for flat white or ‘Capp’ for Cappuccino. Make sure that everyone understands your abbreviations before you start any new ones.
How do you sequence the order?

After taking the order think about the sequence the order will be prepared in. Some of the beverages can be prepared quicker than others. You don’t want an item ready and going cold while you are preparing the other items.

Click on the icon for some tips on how to sequence the order.

 Beverages without milk should be made last, as they are quick to make. They only require hot water and the espresso to be extracted.
 Extract coffee using the double group handle, making two extractions at once.
 Preparing your group handles can be done prior to texturing milk. Do not put them into the group head as the coffee can burn if you are not extracting straight away.
 Texture enough milk for the order. Pour those that need more foam or silk first (cappuccino) and finish with those that require less foam (latte).

After time on the machine, it will become obvious which ones you do first. But it does pay to think about it. Customers don’t like cold coffee.

How important are self-management skills?

Effective and efficient baristas complete tasks to a high standard with the least amount of time, effort and energy. Conserve your energy. Don’t waste it! You must organise your own tasks to minimise work and maximise productivity. Use a systematic approach to manage your speed and time without compromising safety.

Click on the dot points to learn more.

 Make a list of tasks you need to complete.
 Prioritise your tasks.
 Avoid distraction. Concentrate on the job at hand.
 Ask for help if you’re struggling to meet deadlines.
 Observe other experienced attendants in action to identify more efficient ways of working.
 Don’t take shortcuts or compromise safety.

End of section

You have reached the end of section 3.

Click to the next section to continue.
Section 4:
Extract and monitor quality of espresso

In this section you will learn the following.

• How to select and prepare serviceware.
• How to select, clean, dry and dose filter basket.
• How to tamp ground coffee.
• How to flush group head before extracting espresso.
• How to monitor quality of extraction and make adjustments.
• How to monitor the efficiency of the espresso machine.

What is espresso extraction?

A true espresso extraction (all things being equal) should be 30 ml in 27 to 32 seconds.

Click on the icon to find out more.

• The espresso is the basis of all coffees. Whether you are making a latte, flat white or a cappuccino, your ability to extract the perfect espresso is crucial.
• Italian barista, for example, extract 20 or 30 espresso every morning and tip them down the sink or serve them to their staff to ensure that the first espresso they sell is perfect.
• It takes time to achieve the right grind, reach the right temperature and attain the right machine pressure to make a great espresso. A barista may adjust the grind 20 or 30 times throughout the day depending on the weather (humidity).

What are the steps involved in extracting an espresso?

Over the next few screens we will look at the step-by-step process for extracting an espresso.

Click on the pictures to see what they are.

Step 1: Select correct serviceware
Step 2: Begin grinding
Step 3: Remove group handle from the group head and knock out used coffee.
Step 4: Dispense coffee
Step 5: Tamp coffee
Step 6: Clean group head and insert group handle
Step 7: Monitor water temperature and pump pressure
Step 8: Analyse extraction rate
Step 9: Visually assess the quality of extraction
Step 10: Check spent grounds (puck or cake)

Let’s go through these steps over the remainder of this section.

**Step 1: Select correct serviceware**

Certain styles of coffee go in certain cups or glasses. Unless the customer has asked for a particular cup, glass or mug then follow the general guide below.

Click on the icons.

**Espresso glass or cup**
- Espresso
- Short macchiato
- Ristretto

Establishments may purchase either or both; a cup holds approx 95 ml.

**Cup**
- Cappuccino
- Long black
- Flat white

Standard 5 oz cup is 175 ml.

**Latte glass**
- Caffé latte
- Long macchiato
- Mocha

Standard 8 oz latte glass is 220 ml.

**Note**

Cups and glasses are stacked on top of the machine for easy access, and also to keep them warm. Warm cups and glasses keep the coffee at the correct temperature. A cold cup or glass brings the temperature down to lukewarm, destroying the coffee flavour.
Step 2: Begin grinding

Turn on the grinder, letting it run for 15 to 20 seconds for every dose of coffee. When coffee beans are ground, CO₂ and aromas are forced out of the bean and replaced with oxygen. The bean begins to lose flavour and aroma immediately after grinding.

Step 3: Remove group handle from the group head and knock out used coffee

Select the desired handle

Select the desired handle as a maximum of two coffees can be made from each group. Some machines have four group heads so you could make eight coffees at one time. But unless you are very proficient at expressing coffee, this is not advisable. The coffee will lose its crema, temperature and flavour if left too long.

Knock out the spent coffee ground

Knock out the spent coffee ground and wipe out the filter basket with a clean cloth to remove any coffee particles. Don’t clean the filter by flushing under hot water because water attracts water. When fresh coffee is placed in the filter, it will follow a path to water, and extraction flow will be uneven. Also, rinsing the group handle may leave water on the floor around the coffee machine, creating a potential workplace hazard.

Replacing the filter basket

Some operators believe that the filter basket containing the previously used grounds should stay locked in the group heads until the next coffee is made. This keeps the filter holder moist and the temperature stable ready for the next coffee. Other operators will knock out the grounds and wash the filter holder and replace it empty into the group head. The downside of doing this is that the filter will dry out if left for ten minutes or so. So, the next few coffees will have a stale metallic flavour.

Hot tip

You should adopt the standard practice of your establishment. A coffee machine used constantly produces the best coffee.

What are the sizes and types of filter baskets and tampers?

Filter baskets come in two main sizes.

7 g filter basket

The 7 g filter basket is used for single shots of espresso.
14 g filter basket

The 14 g filter basket is used for two shots of espresso, which could be two espressos, or used as a strong coffee (double shot).

Click on the Icon to learn more about tampers.

A coffee tamper is used to compress ground coffee in the process of making espresso coffee. Most tampers are hand-operated where you use manual force to compress the coffee. However, there are also machine-mounted or grinder-mounted tampers. These don’t take any extra bench space so may be good when space is very tight, but they require a lot more force. Tamping upwards is difficult and it is hard to apply the pressure required.

Step 4: Dispense coffee

When the dosing chamber is empty you begin with the grinder running. Place the single group handle under the dosing chamber and flick the lever several times to release the coffee. If the dosing chamber is already full with ground coffee, you only have to flick the lever once for a single shot and twice for two coffee shots. If correctly set, the required 7 g of coffee will dose into the group handle each time you flick the lever.

Click the icon to watch the video to see how it is done.

Note

As we have mentioned, the dose can be measured by sight, electronically, manually or mechanically. To ensure consistent coffee always make sure you use one of these measures.

Step 5: Tamp coffee

Click the icon to learn the correct way to tamp.

- Tap the side of the filter holder with your hand or manual tamper to disperse the coffee. This ensures the coffee is even. Using the manual or grinder tamper, exert light pressure and gently pack the coffee. Keep the group handle level and press vertically. Don’t rock the holder from side to side, or you’ll end up with uneven and poorly extracted coffee.

- Remove the group handle and wipe the rim with the palm of your hand to remove loose coffee. This prevents ground coffee gathering in the locking rim and the gasket in the group head.

- Applying more pressure, re-tamp the coffee. Approximately 10 to 15 kg of pressure is recommended. If the grind and dosage is correct, just apply firm pressure to pack the coffee. Once packed, no amount of pressure is going to alter the consistency of the tamped coffee. Create a flat coffee surface to ensure even extraction of the coffee.

Click the icon to watch the video to see how it is done.
Step 6: Clean group head and insert group handle

It is a good idea to run water (just briefly) through the group head before you lock the group handle in place. This flushes out any dirty water that may have built up from previous coffees and it heats up the group head.

Step 7: Monitor water temperature and pump pressure

The pressure is essential for creating the crema.

- Click on the icons to find out more about water temperature and pump pressure.
- Check the pressure gauge often as the temperature and pressure will vary.
- Most machines measure the water tank pressure as well as the pressure of the water as it’s forced through the espresso.
- Most commercial espresso machines have a temperature stabilising function, keeping the water inside at a constant temperature.
- To avoid the temperature getting too hot, it is recommended you run water through the group head every few minutes.
- Be aware that constant coffee-making as well as using the water in the boiler for making tea means that the water sometimes cannot be heated fast enough.

Click on the icon to find out what you need to know when monitoring water temperature and pump pressure.

**Water temperature and pump pressure details**

- Pump pressure should be between 8 and 9 bars.
- Brewing temperature should be somewhere between 88 °C and 92 °C.
- Boiler or machine pressure should be 1 to 1.5 bars.
- Water temperature in the boiler should be just under boiling point.
- The water level in the boiler should remain at around 70% full.

**Note**

Machine temperature and pressure should be adjusted by a service technician. It is important you identify the irregularities and report them to the appropriate person.

Step 8: Analyse extraction rate

- Click on the icons to find out how you analyse extraction rate.

**Check coffee flow**

Lock the group handle in place and turn on the machine. You have about four seconds before coffee starts flowing. If it is longer than five seconds, the coffee in the filter will begin to burn, and you need to re-check your grinding and dosing.
**Time the extraction**
If your grind and dosage are correct then it should take 27 to 32 seconds to extract 30 to 35 ml of espresso. Time it. The coffee should be deep brownish in colour.

**Visually check the coffee flow**
If the flow begins to change from deep brown to light, re-check your grind or dosage.

**Check crema**
The espresso will have a honey-tinged layer of crema, so serve it immediately. If left for longer than 90 seconds, the crema will disappear and the temperature will drop. If you are making it with a mix of lattes and flat whites for one table, make the espresso last.

**Check flavour**
It is always a good idea to taste the coffee, especially at the beginning of the day. Note the coffee strength, the ground bean for grittiness, the temperature and any machine flavours such as stale water or metallic taste from the group heads or filter baskets.

**Step 9: Visually assess the quality of extraction**
A perfect espresso will have the following qualities.

- Good aroma
- Good body. You should not be able to see through the coffee if held up to the light
- Thick crema with a rich honeycomb colour that can support sugar
- Strong balanced taste
- No more than 30 ml in volume which should take 27 seconds.

The extraction as it flows from the machine will literally look like ‘mouse tails’. If the extraction is too fast, the coffee will have no body, a pale thin crema and a sour taste. Too slow, and the coffee will have a burnt bitter taste.

**Hot tip**
Next time you walk into a coffee shop, try and decipher the aromas. Does it smell burnt? Is it stale? Is it sweet? The smell of good coffee is unmistakable!

**Step 10: Check spent grounds (puck or cake)**

- When you gently knock or tap out the puck (often referred to as a cake) it should come out in one round resembling a chocolate biscuit. This will help confirm your grind, dose and tamp are all correct.
- If it falls out in pieces and quite wet, chances are the grind is too coarse, the dose is less than 7 g, or you have not applied enough pressure when tamping. Make the necessary adjustments.
- The spent puck should have an imprint of a screen because the coffee swells as water passes through it, forming a vacuum in the group head.
Putting the whole process together

Let’s look at the coffee-making process from the grinding and dosing stage through to extraction.

Coffee is a significant part of people’s daily lives. If your business relies on a good coffee trade, you need your customers coming back day after day. One dreadful coffee will send them straight to your competitor.

Quick thinking

Having a work routine is very effective if you want to be efficient in your work.

You have 15 seconds to think of ways you could improve your efficiency at work.

Think of ways you could improve your efficiency at work.

Discuss your answers with fellow colleagues, those who work on an espresso machine, or your trainer. Click to the next screen to look at some ideas.

How do you develop your work routine at the espresso machine?

Next time you are out and about, look at the coffee set-ups in different cafés, restaurants and bars. They appear similar but on closer inspection you will see that they differ quite a lot. The work routine for making coffee also differs.

Number of coffees you make in one day

A café making over 300 cups a day needs a large machine (with four group heads) and more bench, fridge and storage space than a café serving 50 cups a day.

Number of operators using the machine

Some establishments have two or three people making coffee throughout the day. Everyone has their own way they want their work area set up. Where possible, try and stick to one method.

Experience of the operator

The work routine of an experienced barista will vary significantly to that of an inexperienced operator. Experienced baristas make the whole process look effortless, precise and exact.
Quality of the machine
Old and poorly maintained machines cannot present a good coffee each and every time.

In a nutshell
Each establishment works out their best work routine based on the above points. Whatever the set routine, ensure you and everyone else making coffee follows it. This helps guarantee your customers will drink consistent coffee day after day.

End of section
You have reached the end of section 4.
Click to the next section to continue.
Section 5: Undertake milk texturing process

In this section you will learn the following.

- How to select appropriate cold milk and milk foaming jug.
- How to purge the steam wand.
- How to texture milk according to type of milk and coffee beverage.
- How to monitor and adjust the texture and temperature.
- How to clean and purge the steam wand.
- How to combine foam and milk through swirling.
- How to pour milk according to the coffee beverage.

Texturing milk

Great foam, with or without flower and heart patterns shows off the barista's passion in making coffee. Practice is the one thing that will help you create great foam by texturing (glossary) the milk.

Click on the icon to learn more.

There are many ways to foam or texture milk. The methods may vary greatly from one establishment to the other. The method recommended here should ensure that your foam looks great, tastes great and forms like meringue. The first important aspect is the milk. Let's look at this first.

Which milk is best for foaming?

Full cream milk is the best for foaming. The more fat in the milk, the easier it is to froth. Milk must be fresh and just above freezing. The colder the milk, the longer it takes to steam ensuring the texture is smooth and velvety. This velvety texture is what makes a perfect latte.

Click on the icons to identify the different milk types.

- Full cream
- Low-fat
- UHT milk
- Soy milk
- Enhanced milk (glossary)
Any milk can be textured to create perfect foam, although non-fat is the most difficult, especially if you are learning. If too much air is injected into non-fat milk, it fluffs up easily causing large bubbles to form sea foam. Non-fat milk once textured, separates quickly with dry foam on top and hot runny milk underneath, so it must be served immediately.

**Hot tip**

Soy and long-life UHT milk are more stable than low-fat milk and foam quite well.

**What jug should be used to texture the milk?**

**The best jug**

Experts in the industry use the straight walled stainless steel jug that tapers in slightly and has a pouring spout. To create delicate patterns, a pouring spout is vital. Use a jug you are familiar and comfortable with. Jugs should be kept in the refrigerator so when cold milk is poured, they are as cold as possible prior to texturing.

**Jug sizes**

Jugs vary in size from 1/3 L, 2/3 L, 1 and 2 L (300 ml to 2 L). The one you choose depends on the type of coffee and how much you make. The 2/3 L jug is the most versatile. It holds enough textured milk for two to three cappuccinos. The 1/3 jug is used when steaming milk for one cappuccino or equivalent.

**The right jug for the job**

The size of jug also depends on the size of your espresso machine. A three-head machine will contain enough steam pressure to create the whirlpool effect in a 1 L milk jug and produce great foam. Smaller machines won’t drive this quantity of milk, so the 2/3 L jug is best.

**Quick thinking**

Steam is needed to texture the milk. You have 15 seconds to think of how this process could work.

Click start to begin.

Think of how steam can add texture to milk.

How did you go? Compare your answers to the following screens.
How does steam pressure affect the milk texturing process?

The steam creates a whirlpool effect during the texturing process. If there is too much steam pressure, the milk will be literally blown out of your jug. If there is too little, the milk won’t spin properly and the milk cannot be textured.

Regulate steam pressure according to how much space there is above the water level, via the boiler pressure meter. This steam space can be seen through the sight glass on your machine. The water level should never go below the halfway mark in the sight glass. Ask your supplier representative to check the water/steam ratio to ensure it is at the correct level for your type of machine.

Never adjust the boiler water level when the machine is on. Remember to always monitor the steam pressure during foaming and steaming.

Click the icon to watch the video ‘Too little steam’.

Click the icon to watch the video ‘Too much steam’.

Now you have selected the right jug and milk and checked the steam pressure, you are ready to texture the milk.

What are the steps in texturing milk?

Click on the icons to check out how to texture milk for a cappuccino.

**Step 1**
Fill a chilled jug with fresh cold milk (1/3 to 1/2 full). This allows for the milk to double in size.

**Step 2**
Use a milk foaming thermometer and attach to the jug.

**Step 3**
Turn on the steam arm over the drip tray and expel excess water and any milky residue. This is called purging the steam. Wipe with a clean damp cloth.

**Step 4**
Place the tip of the steam arm just under the surface of the milk and turn on steam to full power. If you hear a high pitched ‘hsst’ sound, lower the tip of the steam wand a few more millimetres into the milk until it changes to a deeper rumbling sound. The milk will have a swirling motion.

**Step 5**
As more air is incorporated into the milk it expands and the milk level in the jug rises. This is also known as ‘stretching’ or ‘aerating’ the milk. You can slowly lower the wand further into the jug to continue aerating if necessary. Don’t ‘jiggle’ the jug up and down; keep your hand and the jug steady.
Step 6
When the milk reaches approximately 40 °C raise the jug and submerge the tip of the wand deeper into the milk. The steam pressure will create a whirlpool effect; tilt jug if necessary to help create this effect. Any larger bubbles in the foam should disappear, keeping the finer, denser foam. The sound of the steaming milk should change from rumbling, into a low droning noise. Don’t touch the steam wand on the bottom of the jug as this results in a loud screaming noise.

Step 7
When the temperature reaches 60 °C turn the steam off and wipe the steam arm with a clean damp cloth. The milk temperature will continue to rise anywhere up to 70 °C. The optimum temperature for serving milk is between 60 and 65 °C.

Step 8
Swirl the milk (glossary) then pour milk immediately into espresso and serve according to customer preference.

Note
If you don’t have a thermometer, place your free hand on the bottom of the jug and as soon as it becomes too hot to touch, turn the steam off. It should be the correct temperature for serving.

What are some common questions when learning how to texture milk?

Why is the arm placed just below the surface of the milk?
This ensures you create ultra-fine foam with tiny bubbles. Ultra-fine bubbles enhance the flavour of the coffee. Big air bubbles on the top of your cappuccino prevent the espresso flavour from saturating your taste buds: coffee is all about the flavour.

When the tip of the steam arm is kept just under the surface you will hear a gentle hissing sound as air is drawn into the milk. If you hear splattering, the arm is too high and is breaking the surface of the milk. You will end up with big bubbles.

Why is the arm placed in the middle of the milk and not to the side?
Placing the arm in the middle or centre of the milk will allow the milk to ‘roll’ around the jug. If you look closely, a funnel shape will appear in the milk around the tip of the steam arm. The steam arm draws in air, which is what makes the milk expand.

What is the minimum amount of milk required in the jug?
You need enough room in the jug to expand the milk to double its size. Never fill any jug more than half full. The minimum quantity of milk is about one-third full. Any less and you will have difficulty texturing it.
It is important to only heat enough milk for what is required. However, one-third would not give you enough milk to texture for one cappuccino. One latte, however, is possible.

**Can I reheat milk?**

This is a complex issue. If the milk has been boiled or scalded, then definitely throw it out. If you have made a cappuccino, for example, and have a small amount left in the jug, add more chilled milk and reheat. Reheated milk will not be as sweet and/or texture as well as fresh milk. Efficiency is the key, and no one likes wastage, so compromises may need to be made.

When combining milk, it is best that residual leftover milk is at least cool or cold to touch. Having two jugs in operation enables you to place any residual milk back into the refrigerator to cool it down as much as possible before adding to and reheating it.

**Why do I wipe the steam arm every time I use it?**

This is more hygienic. As the steam arm is hot, the milk will harden and set on the arm if it is not wiped. Don’t place a milk-encrusted steam arm back into fresh milk; it will interfere with the milk circulating in the jug as it heats.

The cloth used to wipe the arm should be used for that alone. Rinse the arm cloth regularly to keep it free from milky residue.

Once you start making a few coffees, you will understand the importance of these questions. Getting things wrong, like boiling the milk, is part of the learning process. It allows you to identify how terrible coffee tastes when the milk is burnt!

Make sure you taste the bad coffees you make as well as the good ones. You’ll notice the difference.

**How do you pour the milk for the style of coffee?**

Contrary to what you may think, there are different techniques for pouring the milk from the jug into the cup or glass. Experience is the only way to learn how to do it well. When pouring milk, do it promptly, evenly and consistently. The amount you pour will depend on the style (latte, cappuccino, etc.) as well as various requested preferences.

Everyone has different ways of pouring, so work out what best works for you. Slight adjustments in pouring speed, height and movement of the hand is what will make the various patterns in the milk that you see. Start having a play around and see what you achieve.

Click on the icon to see an example of how milk is poured.
Guidelines for pouring milk

With practice, foaming and pouring milk into coffee will become natural. You will be making heart and flower patterns in no time.

Click on the icons to check out some important guidelines.

- Always use fresh milk. Check the use-by-date.
- Select the right jug for the number of coffees you are making.
- Always clean the steam arm after each use.
- Use a stainless steel jug with a spout.
- Don’t try and reheat milk that has been boiled. Start again.
- Never add ice cubes to milk to cool it down. You won’t be able to texture the milk.
- Try learning to pour milk without the use of a spoon. It’s quicker and easier.
- Keep the steam arm below the surface of the milk. You don’t want big airy bubbles with no flavour.

How do you minimise waste to maximise profitability?

Businesses need to make money to keep the doors open. A big cost to a business is wastage. Here are some examples of how you can minimise the waste in your business.

- Only texture enough milk for your order. Don’t overdo it.
- Don’t leave milk containers out on the bench. When you have poured what you require put the milk back into the refrigerator.
- Practise your technique. When you have the skills, you make fewer mistakes.
- Use a thermometer to check the temperature. Do not overheat the milk; it will burn.

End of section

You have reached the end of section 5.

Click to the next section to continue.
6

Section 6:
Serve espresso coffee beverages

In this section you will learn the following.

- How to present coffee beverages.
- How to serve coffee beverages.
- How to minimise waste.

How do you present coffee?

There is no point making a great coffee if it’s presented badly.

Which of these coffees looks better?

Like anything in the hospitality industry, presentation is everything. Just as how you dress and groom yourself, or the way the kitchen presents the food on the plate is crucial to the overall customer experience, presentation and service of coffee is no exception.

Equally important is getting what was requested. If you ask for lamb you don’t expect to get chicken. If you ask for a flat white, you don’t expect to receive a cappuccino with a mountain of white, airy bubbled froth on top.

When it comes to coffee there are some very discerning customers out there who expect, quite rightly, to get exactly what they ask for.

Things to consider when presenting a coffee

While learning to master the art of coffee-making, you may end up with a few unsightly dribbles and spills, but practice will help you present a great looking coffee every time.

Click on the icons to check out a few things you should consider.

Use clean white ceramic cups

Coffee will stain anything it touches. Even your teeth need attention if you drink lots of coffee. Coffee cups should be crisp white, free from lipstick marks and coffee stains. Avoid leaving dirty coffee cups for long periods of time as it is harder to remove stains. You may need to use a scourer pad and detergent to remove them if the machine-washers do not.
Cleaning cups and saucers

On a weekly basis, cups, saucers and glasses should be soaked overnight in hot water and cleaning powder such as tri-sodium phosphate or an environmentally safer alternative such as Puro Caff. This will remove any stain build-up and keep the cups bright and white. Don’t forget the saucers, as they get just as dirty. Put the cups, glasses and saucers through the glasswasher a couple of times to ensure they are well rinsed.

Check for drips and spills

Nobody wants a coffee with a puddle in the saucer. Foaming the milk correctly will prevent spillage; the foam acts like meringue on top of the coffee.

If drips or spills occur, replace the saucer and wipe the bottom of the cup with a cloth. If the spill is really bad, make a new coffee.

When wiping drips, make sure you use a clean cloth designated for that purpose and rinse it regularly. Don’t use a cloth that you have been wiping the bench or steam arm with. This is very unhygienic.

Using napkins

If your establishment presents a napkin with coffee, place it folded alongside the cup or glass on the saucer. Never tie a napkin around the glass. As mentioned previously, a glass that is too hot to pick up with your fingers means the milk is burnt and should be thrown out.

Teaspoons

Always accompany coffee with a clean, dry teaspoon. Remove any lipstick marks and then clean and dry them. Present on the right hand side of the saucer under the handle of the cup as shown here or across the top of the saucer.

Placing coffee in front the customer

The handle and teaspoon are placed in front of the customer, to the right. This is standard presentation to follow so all cups, saucers and teaspoons look uniform when presented.

Patterns

If you are making patterns on top of the coffee, place the cup on the bench with the handle to the right when you pour the milk into the cup.

Let’s look at an espresso menu and see how each style is presented. Click to the next screen.

The espresso menu

Let’s look at the espresso menu as a guide to how each coffee is presented.

Click on the icon to view the espresso menu.
<table>
<thead>
<tr>
<th>Coffee style</th>
<th>Espresso</th>
<th>Milk</th>
<th>Cup or glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Espresso</td>
<td>30 to 35 ml</td>
<td>None</td>
<td>Espresso cup or glass</td>
</tr>
<tr>
<td>Macchiato</td>
<td>30 to 35 ml espresso</td>
<td>A dash of hot or cold milk and a dollop of foam</td>
<td>Espresso cup or glass</td>
</tr>
<tr>
<td>Macchiato (long)</td>
<td>An espresso or doppio espresso. If espresso is used, put 35 ml of hot water from boiler in first and add espresso</td>
<td>A dash of hot or cold milk and a dollop of foam</td>
<td>A latte glass</td>
</tr>
<tr>
<td>Ristretto</td>
<td>First 15 ml</td>
<td>None</td>
<td>Espresso cup or glass</td>
</tr>
<tr>
<td>Doppio Espresso</td>
<td>60 to 70 ml. This is two full shots (one cup under both spouts) not one dose of coffee extracted to obtain 60 to 70 ml</td>
<td>None</td>
<td>Espresso cup or glass</td>
</tr>
<tr>
<td>Cappuccino</td>
<td>30 to 35 ml espresso</td>
<td>Foamed hot milk with chocolate powder sprinkled on top</td>
<td>A ceramic cup</td>
</tr>
<tr>
<td>Caffé Latte</td>
<td>30 to 35 ml espresso</td>
<td>Foamed hot milk with 1 cm of dense foam</td>
<td>A latte glass</td>
</tr>
<tr>
<td>Piccolo latte</td>
<td>15 to 20 espresso</td>
<td>Foamed hot milk with 10 mm of dense foam</td>
<td>A latte glass</td>
</tr>
<tr>
<td>Flat white</td>
<td>30 to 35 ml espresso</td>
<td>Foamed hot milk</td>
<td>A ceramic cup</td>
</tr>
<tr>
<td>Long black</td>
<td>An espresso or doppio espresso. If espresso is used, put 70 ml of hot water from boiler in first and add espresso or 35 ml for doppio</td>
<td>None</td>
<td>A ceramic cup</td>
</tr>
<tr>
<td>Strong long black, cappuccino, flat white etc.</td>
<td>A double ristretto</td>
<td>Made according to customer style requested</td>
<td>A ceramic cup</td>
</tr>
<tr>
<td>Weak long black, cappuccino, flat white etc.</td>
<td>A ristretto. First 15 ml</td>
<td>Made according to customer style requested</td>
<td>A ceramic cup</td>
</tr>
<tr>
<td>Vienna</td>
<td>60 to 70 ml. Two full shots</td>
<td>Lightly whipped cream</td>
<td>Liqueur coffee glass or latte glass</td>
</tr>
<tr>
<td>Mocha</td>
<td>30 to 35 ml espresso</td>
<td>Milk and chocolate foamed together. Chocolate sprinkled on top (optional)</td>
<td>Liqueur coffee glass or latte glass</td>
</tr>
<tr>
<td>Coffee in large mugs or cups</td>
<td>60 to 70 ml. A double espresso</td>
<td>Made according to customer style requested</td>
<td>A ceramic cup or mug</td>
</tr>
</tbody>
</table>
What does a customer expect when requesting a coffee?

Standards of how a coffee is made and presented vary; however, many customers have a pre-conceived idea of how their coffee will look and taste.

Click on the icons to find out how you can provide your customers with a consistent and enjoyable coffee experience.

Is the coffee at the right temperature?

If you follow the start-up procedures from Section 1, extracting your espresso should occur at the right temperature. If you use a thermometer, the milk temperature will be correct. Serve immediately after making it, or it will be the wrong temperature for serving.

Does the coffee have a crema?

Whether it is an espresso, long macchiato or cappuccino, a crema should be visible. An espresso should have a layer of honey-tinged, very fine bubbled crema. A visible layer of crema is a good sign that the grind is correct, the coffee is fresh and the machine is operating at the right temperature.

Is the foam smooth and velvety?

A layer of smooth foam made up of tiny bubbles is much better than white, light airy bubbles of froth. The coffee flavour and intensity of well textured foam can excite the taste buds. Poorly made froth is tasteless.

Have I made what the customer requested?

It is very disappointing when you ask for a flat white and end up being served a latte. Listen carefully to what a customer requests and take notes if needed. There may be lots to remember, for example, soy milk, decaf, double strength, skinny milk.

Does the customer have all the accompaniments?

Make sure that sugar or sweetener is served either on the saucer or is available at the table, there is a teaspoon, napkin (if applicable), and hot water or cold milk if requested. If you serve biscotti or shortbreads, then make sure they are placed on the saucer as well. Are there marshmallows with the hot chocolates? Or are they only served for the kids?

Does the coffee have the right presentation?

Make sure if it is a coffee with coffee art as part of the presentation that time is taken to ensure this happens.

Hot tip

If you have trouble remembering everything, create your own checklists and place them near the espresso machine for easy reference. Once you have a lot of experience on the machine, it will become second nature. You will be able to rely solely on your senses: sight, smell, touch, hearing and taste.
Meeting special requests and accompaniments

In Italy they serve two different coffee styles. Cappuccino is served in the morning and espresso in the afternoon. In Australia there are many styles served at any time of the day.

Customer requests are wide and varied and it is difficult to accommodate them all, all the time. The important thing is to oblige whenever you can, and if you can’t, then politely inform the customer and suggest an alternative.

Minimise waste

Minimising waste reduces a business’s environmental impact and can increase the profitability the beverages you make and the business overall.

We have discussed some methods of minimising waste throughout the previous sections. Let’s refresh what they were and check out some other techniques.

Click on the dot points to refresh your memory.

- Practise your technique. When you have the skills, you make fewer mistakes.
- Use good stock rotation principles to maintain quality ingredients and reduce wastage of perishable stock.
- Use any leftover ground coffee to **season the machine** (glossary) at the start of the next day rather than using fresh coffee.
- Check the grind regularly and adjust the machine so you always make a great coffee.
- When the rush is over only texture enough milk for each order and don’t overfill the jug.
- Use a thermometer to check the temperature so you do not overheat and burn the milk.

Click on the icon to learn some more waste minimisation techniques.

**Waste minimisation techniques**

- Provide recycling and waste receptacles near take-away coffee stations so empty paper sugar sachets and plastic or wooden stirrers can be recycled, not placed in general waste.
- Adjust your dosage if the chamber in your group handle is too full and you are regularly brushing ground coffee off the rim of the basket.
- Use china serviceware for seated customers rather than paper cups. They are nicer to drink from and reduce waste, even when they are recyclable.
- Encourage regular take-away customers to bring their own reusable container (e.g., a KeepCup or travel mug). You could offer them a 5 or 10% discount.

End of section

You have reached the end of section 6.
Click to the next section to continue.
Section 7: Clean espresso equipment

In this section you will learn the following.

- How to clean machine and parts thoroughly and safely.
- How to maintain water filtration system.
- How to refer faults and maintenance issues.
- How to use energy and water resources efficiently.

Why is it important to clean the machine?

If all espresso machines were cleaned daily, quality would improve enormously. Knowing the taste a dirty machine imparts to an espresso coffee will only help encourage you to clean your machine every day. It tastes awful!

Click on the icon to find out why cleaning is so important.

- Coffee tastes rancid, bitter and lacks any intensity of flavour when drawn through a dirty machine.
- Don’t forget to clean the grinder as well; it is just as integral to the whole coffee-making process.

Let’s look at the components of the machine that you are able to clean and maintain. We’ll identify the areas where cleaning and maintenance are best left to the experts.

It is also important to keep up to date with the changes in technology when it comes to espresso machines. There is always something new on the market. This does not mean you need to go out and constantly update your machine. It is just good to keep yourself informed. Your service technician is a great place to start.

What makes the espresso machine dirty?

Coffee beans contain oil. Oil over time (even over an hour) goes rancid, turns black and ruins the coffee. If it can ruin your coffee that quickly, imagine what it can do to the internal components of the machine over a few days. Espresso machines must be cleaned daily to avoid the build-up of bean oil and coffee grounds.

You also need to clear the steam arm and steam holes of milk residue and wipe the machine to remove milk and coffee splashes.
What WHS requirements must be followed?

It is important to follow all relevant WHS requirements when cleaning and maintaining espresso machines. If the machine breaks down, follow your workplace standard procedure. If there is an obvious fault or defect and you or someone in your workplace is trained to fix it, then do so; otherwise call the service technician.

Never attempt to make repairs yourself if you are not trained to do so. Don’t forget to check your warranty. Machines are expensive and usually come with substantial warranties. Don’t attempt to fix something when it’s covered for free under a warranty.

Click on the icon to check out the safety hazards you must make yourself aware of.

- Steam arms are not only very hot to touch but steam can cause very nasty burns. When cleaning or expelling water from the steam arm, point the steam into the drip tray.
- Metal group handles are also very hot to touch. Never remove the coffee grounds with your fingers; use the knock-out box.
- Metal jugs used for steaming milk can get very hot if you overheat the milk. Use the handle and lightly touch the base to check milk temperature.
- The espresso machine is generally located in the bar, which is a ‘wet’ area. Check for wet floors and wipe up spillages when they occur.

Hot tip

Remember, the espresso machine uses steam and hot water, so there are many parts of the machine that get very hot.

What components of the machine need cleaning?

Most parts of the machine need a good soak, scrub or wipe over using both wet and dry cleaning methods. Your machine will come with an operating manual that explains how to clean and maintain it. It is very important to follow what the manufacturers recommend. Ask your coffee distributor too, for advice.

Click on the icons to show which parts of each machine need to be cleaned.

**Espresso machine**
- Group handles and filter baskets
- Group heads
- Steam arm(s)
- Drip tray
- Machine panels and cup warmer
- Water reserve

**Grinder**
- Conical container or hopper
- Dispenser and dosing chamber
- Grinding blades
Let’s go through the components of the coffee machine and grinder in more detail, and look at the different ways to clean them. Some of the standard cleaning and maintenance procedures may or may not reflect those in your operating manual.

**Espresso machine**

Over the next few screens we’ll focus on the individual parts that require cleaning and the method used.

- Click on the icon to see how the individual parts are cleaned.

**Group handle and filter basket**

Remove the filter baskets (you may need to lever them out with a spoon). The inside of the group handle with the filter basket removed should be shiny and metallic. Not black as most are when not cleaned. Use a scouring pad and clean water to remove the black/brown oily deposit from the outside and inside of the basket.

Check the filter basket for any blocked holes by holding it up to the light. If blocked, the oily residue can be removed by soaking the filters in hot water. The spouts on the filter holders also need cleaning. Place these with handles poking out, in a jug of hot water and leave to soak. This procedure should be carried out daily.

**Cleaning group handles with chemical**

There are a range of chemicals available on the market to clean every different part of the machine. Some chemicals don’t have metal protecting agents and may damage your machine. Use the chemical recommended for your machine or by your distributor. There are also environmentally friendly cleaning agents available.

**How are the group heads cleaned?**

The group heads need to be cleaned to remove the coffee grounds caught up where the group handles lock into the group heads. There are also gaskets and screens in the group head that need attention. Group heads are cleaned using a metal or a rubber disk. The idea is to back flush so that water is pushed back up into the group head, dislodging coffee grounds. You can also clean it regularly throughout the day with a brush or appropriate cloth (dry cleaning method) to remove built-up coffee grounds.

- Click on the icons to find out more information.

**Removing excess coffee grounds**

To remove excess coffee grounds from the group head and screen, use the wet cleaning method.

- Put the blind filter into the group handle.
- Activate the machine so water runs through the group head.
- Loosely place the group handle in the group head and move it backwards and forwards to build up and then release the water.
- The water will appear dirty, so keep doing this until the water is running clear.
- Don’t lock the group handle into the group head and leave it, as the pressure of the water can dislodge the gasket.
Back flushing the group head
To back flush up into the group head.

- With the blind filter in the group handle, lock the holder into the group head for five to ten seconds, then turn it off.
- Repeat three times.
- After the third time, remove the group handle and empty the water from the blind filter.
- Ensure this is done at least four times a day.
- Ensure this is done thoroughly at the end of service.

How to clean a group head with chemicals

- After back flushing, put the recommended dosage (around half a teaspoon) of chemical into the blind filter.
- Lock in the group handle and activate the machine letting it run for 10 seconds.
- Turn off and wait a further 10 seconds before repeating the process a further two or three times.
- Flush the system as previously shown ensuring all chemical residue is removed. If the blind filter is still stained with coffee residue, repeat the chemical process.
- This procedure should be carried out weekly.

Note
A specially designed brush can also be used. This brush is designed to remove the coffee grounds from the group head. It is a good idea to do this throughout the day. To thoroughly clean the group head, use the wet method outlined above.

Chemical safety
Chemicals are used a lot when cleaning equipment and the work area.

You have 30 seconds to list safety considerations when using chemicals.

Click start to begin.

List safety considerations for using chemicals.

Knowing what chemicals to use when and where is important. Compare your other answers to the following screens.
Using chemicals correctly

Cleaning chemicals are designed to dissolve oily residue and are good for getting into those hard-to-reach places. When cleaning the filter holders, dissolve the recommended amount of chemical in water and soak for about 15 minutes.

Chemicals can tarnish and weaken the chrome plating on the filter holders, so don’t leave them in the chemical for too long. Don’t use chemicals on the machine on a daily basis. Use according to manufacturer’s recommendations.

When finished with the chemical cleaner, replace the lid tightly and store well away from food and children.

What chemical information should be provided to staff?

By law you are required to have information about using chemicals available to those using them.

Click on the icon to find out what staff are required to know.

Staff are required to know the following.

- What the chemical is that they are using.
- Where to get advice and information about the chemicals.
- What the hazards and risks are when using the chemicals.
- How to be protected from harm that could arise from the risks.

It might be common sense, but it’s surprising how often this advice gets ignored because you’re busy, customers are waiting, the waiters are pressuring you or you can’t be bothered. Don’t be complacent when it comes to handling chemicals.

What is a MSDS?

A MSDS is a document prepared by the manufacturer or importer. It stands for Material Safety Data Sheet. The MSDS will state whether the chemical is classified as a hazardous and/or dangerous substance.

Click on the icon to find out what a MSDS will tell you.

- Trade name of the product.
- Ingredients of the chemical or product.
- How it may be a danger to health or safety.
- First aid instructions.
- Safety precautions when using the chemical or product.
- Safe handling and storage advice.
Click on the icon to find out where to keep MSDS in your workplace.

- Keep copies of MSDS for each chemical or product used and place copies in a register.
- Store the MSDS in a place that is accessible to everyone. There is usually a copy stored in the chemical area and another copy in the office.
- Copies should be placed where the particular chemical is used.
- Make sure everyone is familiar with the content of the MSDS for the products they use.
- Ensure the MSDS is complete and that there are no pages missing. The MSDS should not be more than five years old.

How is the steam arm cleaned?

The steam arm should be wiped after every use. If the milk arm has been left and milk deposits have dried onto the arm, clean using a wet, soft cloth. Never use a scourer, a knife or steel wool to clean as this will scratch the metal.

Check the steam holes on the end of the steam arm. If necessary, remove the tip of the steam arm and clean the holes with a paperclip and rinse well with clean water. If the milk has built up or caked on, wrap the steam arm in a clean cloth, open the valve and allow hot water with steam venting to soften caked-on milk to help remove it. You should then wipe the steam arm with a damp cloth.

Cleaning the steam arm should be carried out daily.

Click on the icon to find out what you should never do.

**Poor practice**

Never leave the steam arm sitting in a glass of water, soda water or cola. The milky residue ends up inside the steam arm. It takes minimal effort to wipe the arm each time and is the best way to keep it clean. As mentioned earlier in the unit, it’s hygienic practice to use colour-coded cloths, such as blue for general cleaning, and yellow for cleaning and wiping steam arms.

How is the drip tray cleaned?

Clean the drip tray after you have finished rinsing the filters and group heads. Remove the tray to the sink and wash with water and detergent, and then dry. Before replacing it, check that the waste reservoir is not blocked and the drain holes run freely. If you find any problems, unblock the holes. For anything more technical, contact your distributor and ask for advice.
How are the machine panels and cup warming areas cleaned?

Clean the panels (front, back, sides and behind the group heads) daily with a damp cloth. Pay particular attention to the area behind the steam wand for milk splashes. Dry off the panels with a dry cloth to avoid watermarks.

Remove the cups and glasses and wipe down the cup warming area twice a week with a damp cloth.

How is the water boiler cleaned?

Removing the water in the boiler is part of your start-up procedure. Draw off about 3 L of water through the group heads or hot water outlet so that clean fresh water begins to fill the boiler. This will also keep the drainage pipes clean. Different mineral content of the water may also affect the taste. You can test the water by pouring a glass, letting it cool, and then tasting it for any off flavours.

Why is maintaining the water filtration system important?

There will be an organisational procedure to follow to ensure the maintenance of the water filtration system. Maintaining the water filtration system has two key benefits. Firstly, the taste of the water from the coffee machine is better. Secondly, the equipment will require less maintenance and last longer if it is looked after.

Mineral deposits known as scale, build up in the machine. Lack of maintenance can lead to breakdowns. Water filtration removes any chemicals, sediment, minerals and organic matter that may be in the machine.

Espresso machine filters are specially designed for espresso machines and work like a water softener as well as inhibiting scale buildup.

Cleaning the grinder

Click on the icons to learn more about cleaning the grinder.

Conical container or hopper

At the end of the day, remove all coffee beans from the hopper and place in airtight containers. Store in a cool, dry place. It is not necessary to keep them in the refrigerator. If you leave beans or grounds out overnight it will taint the fresh coffee that you put in the next day and cause oil build-up on the grinding mechanism.

The hopper should be cleaned once a week with warm water and mild detergent to remove the oily film from the coffee beans. Rinse well and dry thoroughly before adding new beans.
Dosing chamber
To clean, remove any ground coffee beans from the dosing chamber by flicking the lever. You can place these in an airtight container. To clean the dosing chamber, use a small paintbrush to dislodge any coffee grounds. Throw these away. Wipe the outside of the dispenser with a clean damp cloth.

Grinding blades
The burr blades on the grinder should be brushed clean each day. They grind a lot of beans, so they will get caked with oily residue from the beans. Burrs must be replaced as required to ensure they continue to grind the correct size granules. Ask your distributor to show you some worn out blades and get them to change them when necessary.

Note
Unless you have a good understanding of the grinder, don’t attempt to pull it apart or change the blades. Coffee distributors spend a lot of time putting grinders back together after operators or managers have tried to do it themselves. Leave it to the experts if you are unsure.

How do you report faults and maintenance issues?
The espresso machine is an expensive piece of equipment and needs to be well maintained. It is important to follow all of the organisational policies when it comes to preparing the machine for service, use of the machine and cleaning of the machine.

If at any stage during these processes, you see the machine operating in an unusual way, ensure this is reported to a supervisor immediately. As working as a team is important, you need to let other staff around you know of the issue with the espresso machine. This will help avoid any further use of the espresso machine, causing more damage.

With experience the issues you find may be able to be solved by cleaning the machine, or unblocking the waste hose, for example. But until you are sure how to fix the problem, it is best to get the machine serviced by a technician. Your supervisor will make this decision.

How do you correctly dispose of waste at the espresso machine?
As with making anything, there is generally always waste. What you do with the waste (reuse, recycle) is the important thing. Let’s look at what waste is produced when making coffee and some environmentally sound disposal methods.

Click on the icons to learn more.
**Used coffee grounds**

While roasted coffee is fairly acidic, it appears that most of the acid is water soluble and is extracted during the brewing process. Used grounds have essentially neutral pH and so composting them with other materials is a great idea. If you have large quantities of coffee grounds, then you should limit the percentage to no more than 25% of the volume of the compost pile. You can also put them on plants as a soil conditioner and feed them to the worms in your worm farm. Get your colleagues to take some home and spread them around their gardens or use in their compost. Tomato plants love them!

**Plastic containers and bottles**

Make sure the plastic containers you use to keep your opened coffee beans, decaffeinated coffee, hot chocolate and tea are made from recyclable plastic. If the container is no longer usable as a sealed airtight container, think about how else it may be used: perhaps as a container to hold teaspoons or spoons. Then when its life is over, you can dispose of it in the recycle bin.

A busy barista will go through many plastic milk containers. They are all recyclable and should be placed in the designated recycle bin next to the coffee machine. To save space in your bin, put the container under the steam wand and turn on for three seconds. The hot steam will soften the plastic so you can squash it down considerably in size.

**Vacuum sealed plastic bags**

Most coffee beans come in vacuum packed durable plastic. Are these bags recyclable? Ask your supplier about environmentally sustainable packaging and where you may be able to utilise it.

**Glassware and bottles**

If you break a glass, dispose of it according to establishment procedures. While broken glass, especially clear glass, can be recycled, it is very difficult to sort. Most establishments have an WHS policy to wrap broken glass in paper before disposing it in the general waste. This is done to avoid glass injuries. Broken glass will cut through plastic garbage bags and when you carry the bag to the rubbish area, there is the potential for serious cuts and injury.

Any bottles, such as the flavourings used in coffee (hazelnut, caramel, almond, butterscotch) should be placed in the recycle bin when empty.

**In a nutshell**

Make sure you have separate containers for all your recyclable material so that it’s easy to separate your items. One bin for everything does not promote good recycling habits.

**How can you help to reduce the negative environmental impacts of the coffee machine?**

Two of the biggest resources used when preparing coffee and cleaning equipment are energy and water.

Click on the icons to find out more about them.
Energy resources

In most establishments, the coffee machine is the first thing to be turned on in the morning and the last thing turned off at the end of the shift. As such, the power usage is significant. Even during quiet times, it is not realistic to switch the power off as it takes too long, and requires too much energy to reheat the water/machine.

While there may not be much energy usage during idle times, the power does spike every time a coffee is made. When idle, the power will also surge every now and then to keep the water, machine parts and cup warmer heated. So, if you are a busy barista, chances are your machine will be drawing power constantly and will use significant power. What can you do about that? We will look at this shortly.

Water resources

How many times have you rinsed equipment such as milk jugs, spoons, drip trays under a running tap or under the espresso machine’s hot water outlet? It happens all of the time. Water is also used to rinse cups, run dishwashers and clean surfaces.

What can you do to minimise the environmental impact at your workplace?

Click on the icons to find out how to minimise the environmental impact at your workplace.

Taps

Did you know that a dripping tap can waste up to 31,000 L in a year? That’s enough to fill more than half of a domestic swimming pool! You must ensure you have a system in place for checking taps and washers as part of our regular maintenance procedure and ensure that rinsing equipment under the tap ceases.

The following tips could be included in your operating procedures.

- Cups, saucers and cutlery don’t need to be rinsed if washing in the glasswasher or dishwasher. However, if you need to soak cups to remove stains, do so in a sink of still water, not under running water.
- Dishes and equipment such as milk jugs, spoons, drip tray should be washed in a sink of still water, in the dishwasher or glasswasher, not under a running tap. Group handles and filter baskets should be soaked in a container of still water.
- Sensor taps or foot activated taps should be considered to further reduce water usage.
- Consider reusing and saving water where possible. Use the hot water from the boiler that is drawn off at the beginning or end of service for your mop bucket, or when cooled, on the garden, rather than down the drain.
- You should not rinse your filter baskets under the water outlet before pulling shots, but rather dry-wipe them. This is not only a water-saving technique, but also, for the best coffee result, you want a completely dry basket before you dose.
- Management might consider the installation of high pressure, low flow trigger nozzles. It is essential that all taps have a high water efficiency rating.
**Glasswasher**

Dishwashers and glasswashers make life so much easier in a busy establishment, but there are smart and efficient ways to use them if you want to minimise your impact on the environment.

A set procedure needs to be implemented for the use of the dishwasher and glasswasher. Economy wash should be used where possible and only turned on when the load is full. If there are only a few dishes left to clean at the end of the shift, they should be hand-washed using low levels of water or left in the dishwasher until the next shift.

**Floor**

Getting out the mop and bucket is just a part of normal cleanup procedures, right?

No, it doesn’t have to be your only option. Sometimes a broom might be more efficient, or an energy approved vacuum or steam mop.

If you do use a mop, think about what you could use the water for before pouring it down the drain. Staff could use it to water plants on the surrounding gardens and pot plants.

You could use the purged water from the espresso machine, or bain-marie to mop the floor. At times, it may be more appropriate to sweep the floor rather than use a mop at all.

**Espresso machine**

Old technology and well-worn espresso machines use a lot of power, especially if you make a lot of coffee. If you are purchasing a new espresso machine or upgrading an old one, check out the current range of energy-saving espresso machines. New machines allow you to save significantly on your power bill as well as reducing carbon emissions. They have automatic stand-by modes during off-peak periods and at night, and they will only carry power when and where it is specifically required.

Also, ask whether or not the boiler within the espresso machine is insulated. There are still some questions around whether they should or shouldn’t be insulated, but those who have insulated boilers note a marked improvement in energy usage.

Ask some questions before your next purchase.

**Refrigerator**

Checking fridge and freezer seals and turning off equipment at the wall outlet are other simple practices to ensure that energy is not being wasted, as is checking the energy efficiency rating of all electrical equipment.

Checking fridge and freezer seals should be part of our regular maintenance procedure. Turning off grinders, point of sale terminals, sound systems and juicers at the power source should be a practice carried out at the end of each shift.

**Sink area**

Chemicals are used to clean and soak coffee stained cups, backflush the espresso machine, to clean and sanitise the work area using buckets when mopping the floors, and on the exterior of the glass display cabinet and drinks fridge.

Is this necessary? What types of chemicals are used? Are they harmful to the environment, and what happens to the containers when they are empty?
The establishment should be using chemical-free or environmentally friendly cleaning products in all areas. There are readily available environmentally friendly products to use for backflushing the espresso machine.

**Take-away coffee cups**

Do you see what I see sitting on the counter? The establishment offers take-away and it appears that they have recyclable coffee cups, but what about the straws, plastic cutlery and the plastic bags they are handing out to customers? Are they made from recyclable material? All of this plastic waste will end up in landfill.

A plastic's ability to be recycled differs from one council to the next. Whether or not you can recycle used straws, plastic cutlery and coffee cups will depend on our kerbside recycling program. Planet Ark has created an excellent website to help businesses find recycling depots for all sorts of recyclable waste when kerbside recycling is not an option. www.recyclingnearyou.com.au

It would be a good idea to stop offering straws and encourage customers to use glasses, coffee mugs and reusable cutlery instead of the plastic alternative. As for plastic bags, this practice is unnecessary and should be stopped altogether, regardless of whether or not they are recyclable.

**Condiments**

Take a look at the salt, pepper and sugar provided in individually packaged sachets. This is hygienic and much easier than refilling dispensers. When you look closer, they appear to be made from recycled paper.

It’s time to make the switch back to salt, pepper and sugar dispensers. Regardless of whether or not the packaging is made from recycled paper, the resources required to individually package these products is too high. You could improve this practice by purchasing sugar, salt and pepper in large containers and refilling reusable dispensers.

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**In a nutshell**

Next time you go to work, have a think about what you can do to minimise the environmental impact in your daily work routines and what you can do to help educate those who work with you.

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**End of section**

You have reached the end of section 7.

Click to the next screen to read the unit summary.
Summary

Now you can see how much effort goes into making a coffee experience memorable. There is nothing better than the aroma of freshly ground coffee wafting through the air, the hustle and bustle of busy baristas at the machine and drinking coffee that has an intense, full-bodied smooth flavour.

This and the atmosphere of happy customers enjoying coffee around you will stimulate all the senses.

Becoming a barista can be a life-long learning adventure. Is it yours?
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## Glossary

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
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<tbody>
<tr>
<td><strong>Crema</strong></td>
<td>The golden foam produced on top of the coffee by passing water through the coffee grounds.</td>
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<tr>
<td><strong>Enhanced milk</strong></td>
<td>Enhanced milk has a relatively low fat content and milk solids added to aid consistent foaming.</td>
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<tr>
<td><strong>Extract</strong></td>
<td>The action of the coffee flowing from the group handle. The machine forces pressurised steam through the ground coffee beans.</td>
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<tr>
<td><strong>Extraction rate</strong></td>
<td>The rate at which the coffee flows from the group handle.</td>
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<tr>
<td><strong>Group handle</strong></td>
<td>It is also known as the filter holder. In this unit we will refer to it as a group handle.</td>
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<tr>
<td><strong>Hygroscopic</strong></td>
<td>Absorbing or attracting moisture from the air.</td>
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<tr>
<td><strong>Mise en place</strong></td>
<td>(Pronounced ‘miz-on-plus’). Mise en place is a French term that translates to ‘everything in its place’. It refers to setting up equipment and ingredients for service.</td>
</tr>
<tr>
<td><strong>Season the machine</strong></td>
<td>When starting up the machine each day, it is important to extract a few espressos first to get the machine balanced and working at optimum level.</td>
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<tr>
<td><strong>Swirl the milk</strong></td>
<td>This means rotating the jug to combine milk and foam. Milk foam, which is lighter, will rise to the top, and milk, which is heavier, will sink to the bottom. Rolling the milk is done to achieve consistently dense foam.</td>
</tr>
<tr>
<td><strong>Texturing</strong></td>
<td>Heating milk to produce a rich smooth foam.</td>
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