



Espresso Science One

Interactive Study Guide

Welcome to the Kaladi Coffee Academy. This training package is designed to get you barista up to speed quickly on the bar. If you are an experienced barista you will find it a good review.

To get the most from this training package be sure to:

1. Pause the tape where indicated on the video.
2. Carefully read through and answer the questions in each section of your workbook. **Refer to the standards section of your workbook for questions which ask about the standards at your bar.**
3. Check your answers in your workbook. Be sure you can answer the questions in your workbook before taking the test.
4. Go through the "Learning on the Bar" activities sheet with an experience person at your bar.
5. Take the test. Review any you missed.

When you have completed the steps above, you should be able to:

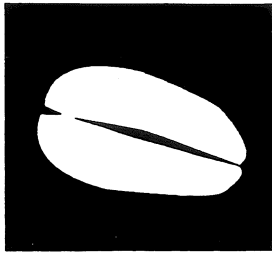
Extract perfect shots

Prepare Perfect milks

Prepare drinks to your bars standards

Maintain your machine

Serve customers



Raw Materials & Equipment

Coffee:

The most important raw material is coffee. The quality of coffee can be determined by examining:

1. **Quality of green beans** - Are they of the highest grade and from the best growing regions and estates?
2. **Quality of Roasting** - What do you know about the roasting process and degree of roast of your coffee?
3. **Freshness of Coffee** - The best coffee is less than seven days old. It should not be ground for more than one hour before it is used.
4. **Flavor** - A properly prepared espresso will be strong but should be acceptable to most palates.

Answer the following questions: (Refer to your bar standards)



Learning Check:

1. What brand of coffee do we use for espresso? _____
2. What kinds of coffee are in the blend? _____
3. Why do we use this blend/coffee? _____



Grinder

Your bar should have a high quality grinder with:

- A clean doser compartment.
- Clean, sharp burrs - replace after 1000 pounds of coffee.
- Clean bean hopper (at least weekly)

Grind must be checked and adjusted:

- Every morning
- As necessary throughout the day

Match the letters to the parts of the grinder below:

- A. HOPPER
- B. ADJUSTING COLLAR
- C. DOSER COMPARTMENT
- D. DOSER LEVER
- E. PORTAFILTER YOKE
- F. ON/OFF SWITCH



Learning Check:

1. Grind is adjusted _____ morning.
2. Grind must be _____ constantly as you pour shots, and adjusted as necessary.

Espresso Machine

A clean well maintained espresso machine makes the best espresso.

Your machine should be:

- backflushed several times daily
- Cleaned with a high quality espresso machine cleaner weekly
- Backed up by excellent maintenance

There are three types of espresso machines - Which type do you use on your bar?
(Refer to your standards sheet):

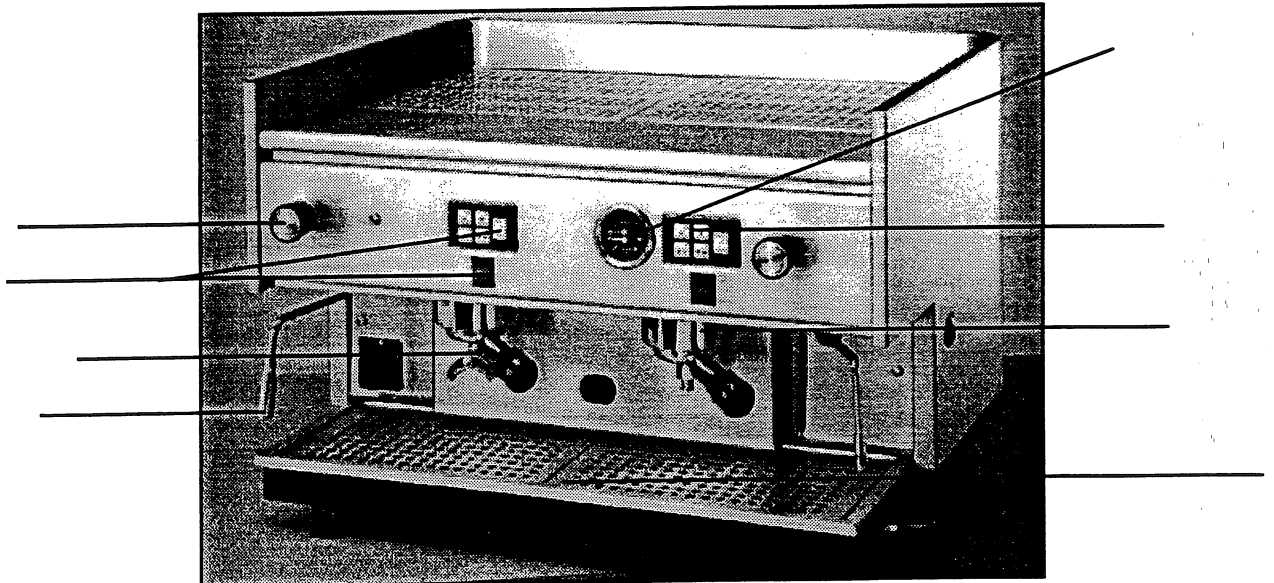
Manual

Semi - Automatic

Automatic

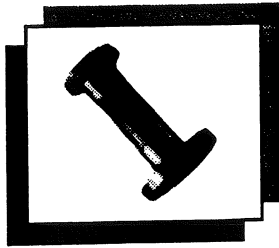
Match the letters to the Parts of the espresso machine below:

- A. STEAM WAND
- B. PORTAFILTER
- C. BREWING OR GROUP HEAD
- D. PRESSURE GAUGES
- E. AUTOMATIC KEYPAD
- F. AUTOMATIC AND MANUAL DISPENSE SWITCHES
- G. STEAM WAND KNOB
- H. DRIP TRAY



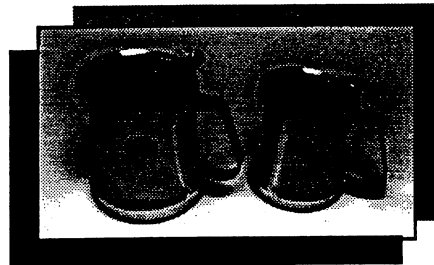
Other Equipment

Hand Tamper



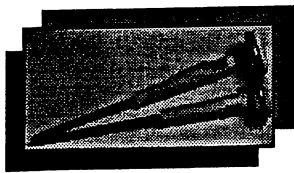
Pitchers:

Stainless steel. We recommend 5 pitchers on a fast bar.



Thermometers:

In every pitcher



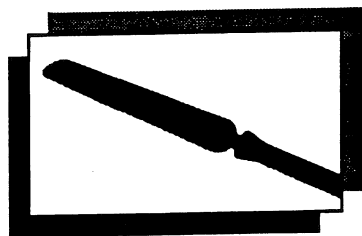
Measuring cup and Stop Watch:

To keep your grind adjusted, you will need both a shot glass or measuring cup and a stop watch. These should be kept on your bar at all times.



Cutting Knife:

A knife is necessary for cutting excess foam while pouring steamed milk or mocha mix. A long, flat bladed knife is useful.



Clean Rags

One for each steam arm and one for the counter.

STOP HERE - PLAY THE NEXT SECTION OF YOUR VIDEO!



What Is Espresso?

- Espresso is more chemically complex and flavorful than brewed coffee.
- Espresso gives drinks their initial flavor and aftertaste. Although it is only a few ounces in volume, it has a lot of flavor.
- Poorly prepared espresso cannot be covered up by milk, chocolate, or flavors added to a drink.

Three parts of an espresso:

Emulsion - Espresso brewing extracts more oils than other brewing methods. The oils are emulsified into the brew by the pressure of the espresso machine. This emulsion is also called the "Crema." The crema helps to hold in the **flavors** and **aromas** of the coffee.

Suspension - Tiny particles of coffee and gas bubbles are suspended in an espresso. They contribute to the feeling of body in an espresso and help to prevent you from tasting the bitter flavors in the coffee.

Solution - The water soluble elements of a coffee are the same elements you get in a cup of brewed coffee.

Always serve or use espresso within twenty seconds after it has poured.



NOTE:

If you don't see all three layers when an espresso is brewing something may be wrong. Check your grind, coffee freshness, and brewing pressure of your machine.



Learning Check:

1. Espresso is more chemically complex and _____ than brewed coffee.
2. Espresso should be served within _____ seconds after the shot has extracted.
It is best served or used immediately!
3. The crema helps to hold in the _____ and _____ of the espresso.
4. True or False: A bad shot cannot be covered up by either milk, chocolate or syrups.

Label the parts of the espresso below:

- 1.
- 2.
- 3.



STOP HERE - PLAY THE NEXT SECTION OF YOUR VIDEO!



What is a Shot?

A properly extracted shot of espresso is the basis for quality espresso drinks.

A Single Shot is:

• 7 grams of coffee • + water • 1 1/8 oz. of espresso (including crema)

Single shots are made using a portafilter equipped with a single basket. See pictures below.

A Double Shot is:

• 14 grams of coffee • + water • 2 1/4 oz. of espresso (including crema)

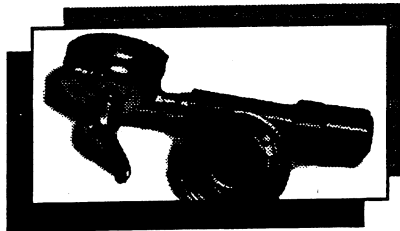
Double shots are made using a portafilter equipped with the deeper double basket. See pictures below.

Ristretto shots - Ristretto means restricted. The volumes given for single and double shots above are for "ristretto shots."

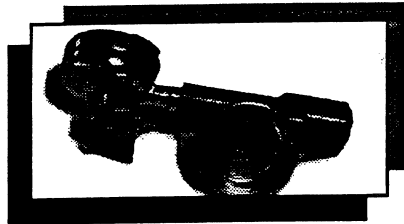
Regular - shots have more water in them. The volume is measured by the liquid not including the crema 1.0 oz for single shots and 2.0 oz for double shots. They tend to make drinks that are thinner and more bitter than those using ristretto shots. We do not recommend they be used.

There are four types of shots or shot combinations generally used in drinks:

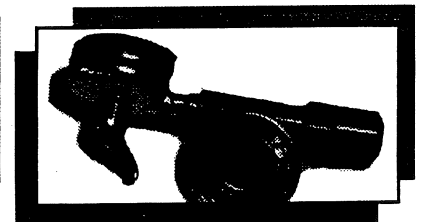
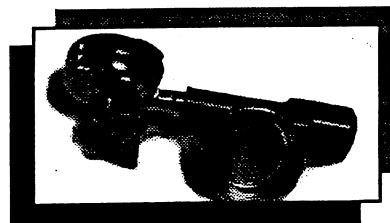
1 SINGLE = single shot



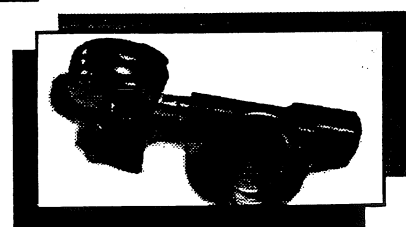
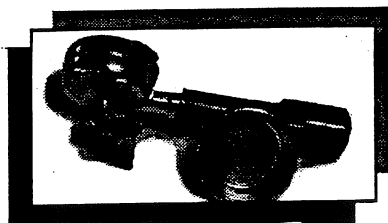
2 DOUBLE = double shot



3 TRIPLE = single shot + double shot



4 QUAD = 2 x double shot





What Is A Shot?

Perfect extraction time is critical to making good espresso.



IMPORTANT DEFINITION

Extraction time = the amount of time the **coffee** is mixed with **water** under pressure from the machine.

There are three things that affect extraction time.

DEFINITIONS:

- Dose - How much coffee you put in the portafilter.
- Tamp - How hard you pack the coffee in the portafilter.
- Grind - How fine or coarse the coffee is ground.



Learning Check:

1. Refer to your standards sheet and circle one: Our bar uses a) single or b) double shots as the standard for our drinks.
2. To make a triple shot you need to brew a _____ shot and a double _____.
3. A triple shot uses _____ grams of coffee to make _____ oz. of espresso.
(Refer to your standards)
4. Your bar may have a different standard than what we suggest. Write in the volume of a single and a double shot below (refer to your standards):
Single
7 grams of coffee
+ water
_____ oz. of espresso (including crema)

Double Shot
14 grams of coffee
+ water
_____ oz. of espresso (including crema)
5. Extraction time = The amount of time the _____ spends mixed with _____ under pressure from the espresso machine.

6. The three things which affect extraction time are:

1. _____
2. _____
3. _____



Dose

There are two ways to dose coffee.

Whichever method you choose, your dose must be **consistent**, or your extraction times will vary.

Choose only one method.

If you switch between dosing methods, you will need to **readjust** your grind since the fill and scrape method gives you a slightly higher dose of coffee.

METHOD #1

Doser Compartment Method:

Advantages: Speed
Consistency

Instructions:

1. Fill back 1/2 of doser compartment.
2. Pull doser lever 2 times to position coffee.
3. Dose coffee.
 - A. 1 pull for a single shot
 - B. **2 pulls** for a double shot
4. If the grind is right, you may **grind additional coffee**. Fill the doser compartment with no more than 1 hours supply of coffee.



NOTE:

- Never grind more than **one** hour's supply of coffee.
- Keep the coffee above the vanes in the doser compartment.

METHOD #2

Fill and Scrape Method:

Advantages: Freshness

Instructions:

1. Grind coffee while dosing constantly.
2. Overfill portafilter.
3. Scrape excess back into the doser.



NOTE:

- Always overfill and scrape your portafilter, or your dose and **extraction times** will be **inconsistent**.
- Keep doser compartment **empty**. Grind coffee for **each** shot.

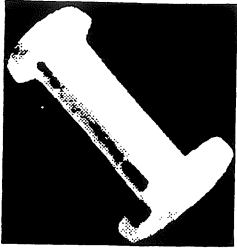


Dose Cont.



Learning Check:

1. Above all, it is important that the dose be _____ or your extraction times will vary.
2. Refer to your standards: We use the _____ method at our bar.
3. **Doser compartment method:**
To make a double shot using the doser compartment method should pull the doser lever _____ times? Once grind has been adjusted you may _____ the doser compartment with not more than _____ hour's supply of coffee.
4. **Fill and scrape method:**
The doser compartment is kept _____ and coffee is ground for _____ shot.
5. Always overfill and scrape your portafilter or your _____ times will be _____.
6. If you switch between dosing methods you will need to _____ your grind.



Tamp

A good tamp is hard, level, and finished with a twist to polish the surface of the coffee. Use a hand tamper to tamp shots - the quality is better.

Tamp pressure can affect extraction time:

- Try to develop a **consistent** hard tamp and change it only if your extraction times begin to **vary**.
- After you have tamped the coffee in your portafilter you should extract and time a shot of espresso.

Refer to your standards and write in the proper extraction times for shots:

- Extraction time should be between _____ to _____ seconds.
- If your extraction times are within 6 seconds of the time above you may be able to change your extraction time by **changing how hard you tamp**.
- If your extraction times off by more than 6 seconds you will probably need to **change your grind**.

Tamp WILL change your extraction times up to 6 seconds:

LIGHTER TAMP:

Decrease extraction times.

HARDER TAMP:

Increase extraction times.



Note:

If you have to use a light tamp to get the proper extraction time, you should adjust your grind as soon as possible. The best shots are made with a **hard tamp** and a **coarse grind**.



Learning Check:

1. A good tamp is hard, level, and finished with a twist to _____ the surface of the espresso in the portafilter.
2. Circle one: A lighter tamp will a) increase or b) decrease your extraction times.
3. The best shots are made with a _____ tamp and a _____ grind.
4. If your extraction time is off less than 6 seconds, you can probably adjust it by _____.
5. If your extraction time is off by more than 6 seconds, you will need to _____.
6. It is a good idea to develop a _____ hard tamp. This will keep your extraction times consistent. You should change it only if your extraction times begin to _____.



Grind Adjustment

GRIND CHANGES CONSTANTLY DUE TO CHANGES IN TEMPERATURE AND HUMIDITY.

To keep your extraction times correct:

1. Adjust Grind for the type of shot you use most. (Single or Double)
2. Check grind frequently with stopwatch.
3. Adjust grind every morning and as necessary.

METHOD #1

To Adjust Grind - DOSER COMPARTMENT METHOD

1. Start with an **empty** doser compartment
2. Grind coffee to fill the back 1/2 of the doser compartment.
3. Pull the doser lever twice. Pulling the doser lever slides the coffee from the back of the compartment to where it will dose properly.
4. Extract and time a shot.
5. If the time is over or under your bar's extraction times, adjust the grind.

TOO FAST (UNDER 20)

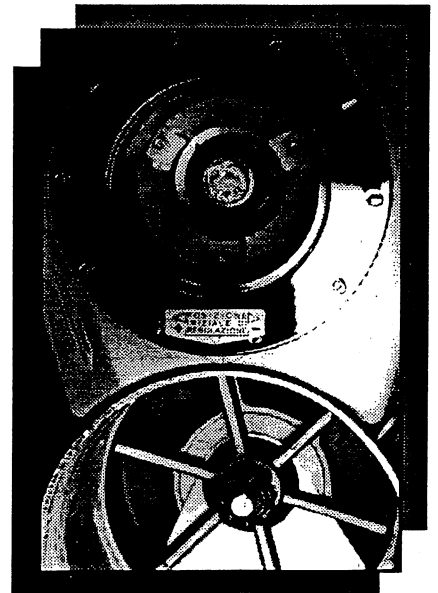
ADJUST FINER

TOO SLOW (OVER 30)

ADJUST COARSER

Generally you will need to adjust the grind only 1-3 notches.

6. Empty the doser compartment, grind coffee, extract and time a shot
7. Repeat starting at step one until the correct extraction time is attained.
8. When correct time is reached, grind coffee to fill the doser compartment with no more than one hour's supply of coffee.





Grind Adjustment

METHOD #2

To Adjust Grind - FILL AND SCRAPE METHOD:

1. Start with an **empty** doser compartment.
2. Extract and time a shot.
3. If grind is over or under your bar's extraction times, adjust the grind.

TOO FAST (UNDER 20)
ADJUST FINER

TOO SLOW (OVER 30)
ADJUST COARSER

Usually you will need to adjust the grind **only 1-3 notches**.

4. Empty the doser compartment, grind coffee, extract and time a shot.
5. Repeat starting at step one until the proper extraction time is attained.



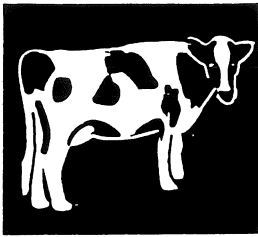
To make excellent espresso you must consistently pay attention to the quality of the shots you are pouring and the times it takes.



Learning Check:

1. To adjust grind, always start with a(n) _____ doser compartment. Left-over coffee will make it difficult to adjust the grind.
2. (Refer to your standards). Our shots pour between _____ and _____ seconds.
3. (Refer to your standards), We adjust the grind using A. single or B. double shots at our bar.
4. If your shots are pulling at 18 seconds, and you want an extraction time of 24 seconds, you can either (circle one):
A. Tamp harder/ lighter
B. Adjust the grind slightly coarser/ finer
5. If your shots are pulling at 35 seconds, and you want an extraction time of 24 seconds, you should:
A. True or false: Tamp lighter
B. Circle one: Adjust grind coarser/ finer
6. Usually you will need to adjust the grind only _____ to _____ notches.

STOP HERE - PLAY THE NEXT SECTION OF YOUR VIDEO



Milk

Types:

There are three types of milk usually used.

Whole, 2%, and skim/skinny. (sometimes half and half is used).

Circle the types you use on your bar:

Whole Milk

2% Milk

Skim Milk

Half and Half

Foaming Milk:

Foam milk by sound. Hold the pitcher steady and lower it from the steam wand so it makes a hissing sound. The steam nozzle should stay close to the surface of the foam.

Four Rules:

1. **Add enough milk** - Usually you need the pitcher to be about 1/4 full.
2. **Use full steam** - Turn the knob at least one full turn.
3. **Foam fast** - Lowering the pitcher as quickly as possible will enable you to get the most foam before the milk gets hot and stops foaming.
4. **Watch temperature** - In general foamed milk is kept at a lower temperature. Try to make a cappuccino at 140-150 degrees maximum.

Steaming Milk:

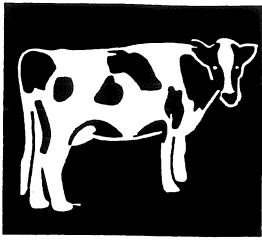
The purpose of steaming milk is to heat it, but not create a lot of foam.

Three Rules.

1. **Add the right amount of milk** - Fill the pitcher with just the right amount of milk for the drink you are making. This will ensure that your drinks are mostly fresh milk.
2. **Aerate your pitcher** - Keep the steam arm close to the surface of the milk so that it foams for a second or two. Then lift the pitcher so that the steam wand is deep in the milk. Aerating the pitcher, will keep milk quiet.
3. **Watch your temperature** - It is very important.

Heat Ruins Milk:

- Never heat it over **180 degrees**.
- Never heat **two times** without adding 1/2 fresh milk.



Milk

Four ways to tell milk temperature:

You should use a thermometer, your hand, and your ear to determine milk temperature - no single one of these is reliable without a lot of experience.

1. **Touch** - Very accurate. With practice your hand can tell temperatures within 2 degrees.
2. **Thermometer** - Accurate thermometers should always be used to verify milk temperatures. In addition, they must be trusted until you can check temperature accurately with your hand and your ear.
3. **Sound** - Very accurate. Milk always makes the same sounds at the same temperatures.
4. **Hopefully not Smell** - If the milk smells cooked, you've scalded it. Do not use it.

Temperature is very important.

Every time you heat milk it loses sweetness and body.

- 140 - Sweet, very rich drink, milk tends to dominate flavor. Perhaps too cool.
- 150 - Perhaps the perfect temperature. Milk is still rich but the flavor of the espresso is accentuated.
- 160 - Milk is thinner. Espresso flavors are weaker as well. Preferable to many customers though, because it is closer to temperature of brewed coffee.
- 170 - Milk thin, aromatics of coffee lost.
- 180 - Scalded milk. Will leave an aftertaste and may burn customer.

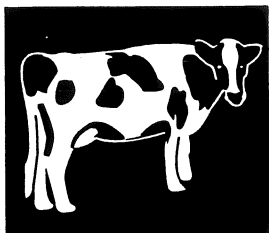
Check your standards sheets and fill your temperatures in:

- In house _____
- To go _____



Learning Check:

1. Write the rules for foaming milk.
 - a.
 - b.
 - c.
 - d.
2. Write the rules for steaming milk.
 - a.
 - b.
 - c.
3. Every time you heat milk it loses _____ and _____.
4. There are two ways to ruin milk:
 - Heat it _____ times without adding _____ milk.
 - Heat it over _____ degrees.
5. There are _____ ways to tell milk temperature.
6. The most accurate ways are: _____.
7. 180 degrees is _____ hot to make an acceptable drink.
8. Thermometers should be used to _____ milk temperatures even by experienced baristas.
9. The correct temperature for drinks at your bar is (refer to your standards):
 _____ degrees to go _____ degrees in house



Milk Cont.

Using the milk cycle puts the freshest milk where you need it most.

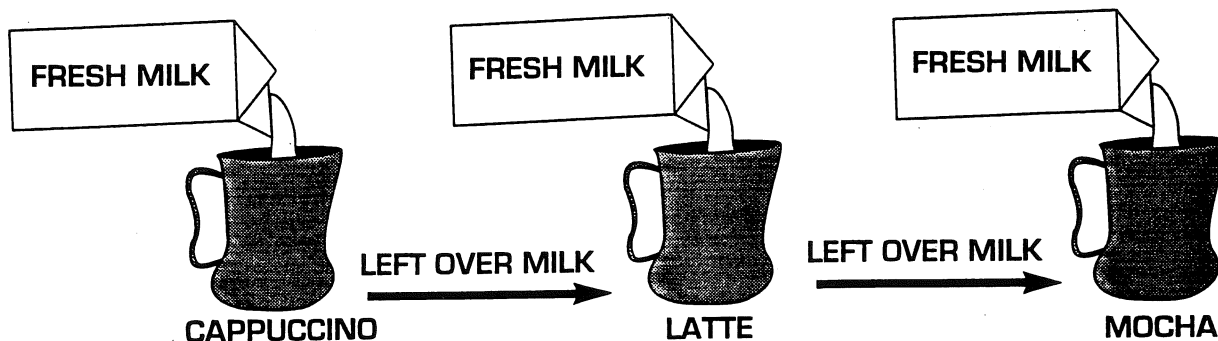
- The best drinks are 100 % fresh milk
- All drinks should contain at least 1/2 fresh milk

Fresh Milk can be foamed one time.

Any milk left over from foaming (making a cappuccino) can be poured into the latte pitcher.

Fresh Milk can be steamed one time. If at least 1/2 fresh milk is added it can be steamed again. Any milk left over from steaming can be poured into the mocha pitcher.

Fresh Mocha can be steamed one time. and again with the addition of 1/2 fresh milk.



Note:

If you have an excess of milk in your pitcher (more than needed for next drink(s) make drink(s) in another pitcher adding 1/2 fresh milk



Learning Check

1. Every drink should contain at least _____ fresh milk.
2. Milk can only be foamed _____ time(s).
3. When you have foamed or heated milk it can be heated one more time with addition of _____ fresh milk.
4. All mochas should contain at least _____ fresh milk.

STOP HERE - PLAY THE NEXT SECTION OF YOUR VIDEO

© Midnight Moon Company Inc., 1994



Making Drinks

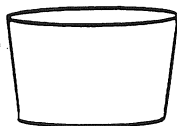
There are four basic drinks. Other espresso drinks are variations of one of these four.

Fill in your standards in the sections below:

Espresso = shot or shots of espresso

_____ shot

OUR STANDARD



Latte = Espresso mixed with steamed milk

Extract your shots and pour them into your glass. Steam milk to the proper temperature. Pour the milk so that it mixes with the espresso. The foam on lattes should be thoroughly mixed with espresso.

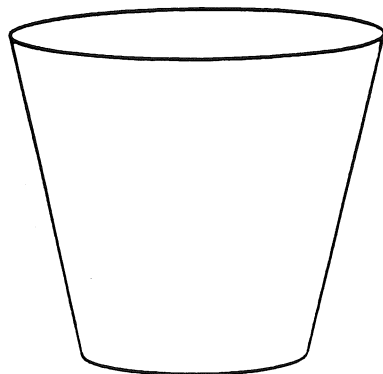
_____ inches of Foam

_____ type of milk

_____ size of glass

_____ shot

OUR STANDARD



Cappuccino = espresso **capped** with milk foam. There are two types - classic and dry.

Extract your espresso and put it in your glass. Foam the milk. Layer the foam over the espresso. Cappuccinos should have white foam.

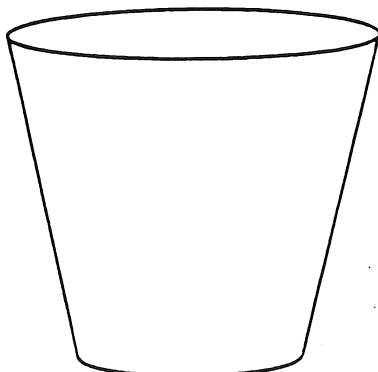
_____ inches of foam

_____ type of milk

_____ size of glass

_____ shot

OUR STANDARD

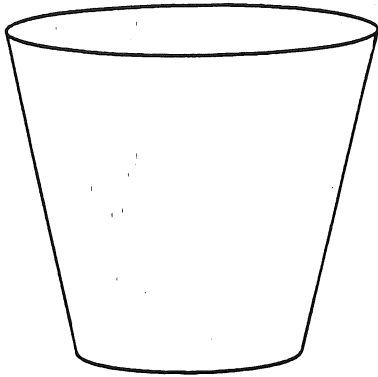




Making Drinks

Mocha = Espresso and steamed hot cocoa

Mochas are best with the chocolate steamed into the milk. Extract shots of espresso. Steam the mocha mix and pour it to mix with the espresso. Be sure to cut the foam.



- _____ whipped cream
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot

OUR STANDARD



Learning Check:

1. There are _____ basic drinks. Almost all other drinks are just _____ of one of these.
2. Lattes are espresso mixed with _____ milk.
3. Cappuccinos are espressos _____ or layered over with foamed milk.
4. Mochas are best with the chocolate _____ into the milk.

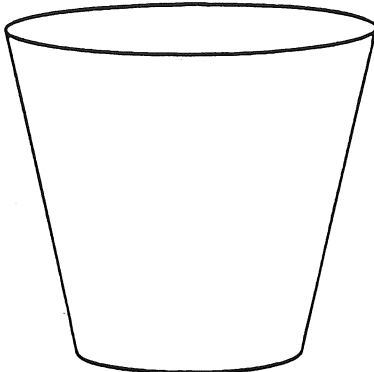


Making Drinks

Fill in other drinks used on your bar:

Drink Name & Description:

_____:

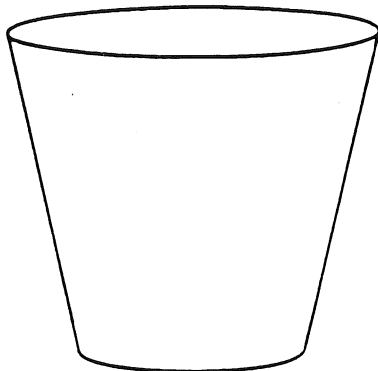


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:

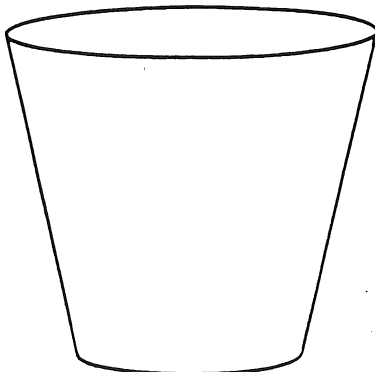


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:



- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

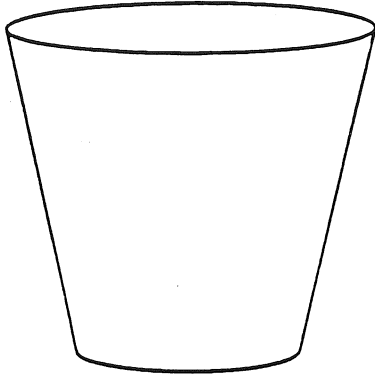


Making Drinks

Fill in other drinks used on your bar:

Drink Name & Description:

_____:

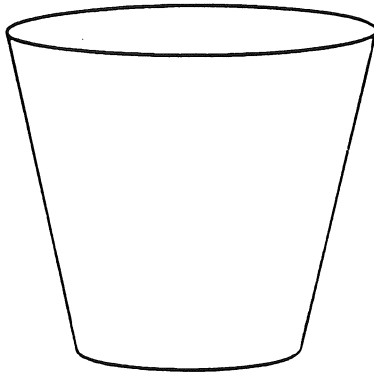


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:

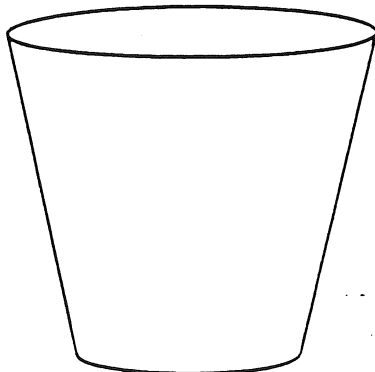


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:



- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

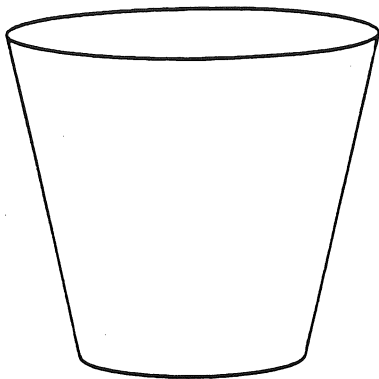
OUR STANDARD



Making Drinks

Fill in other drinks used on your bar:

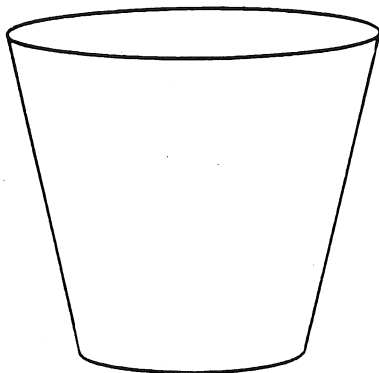
Drink Name & Description:



_____ other
_____ inches of foam
_____ type of milk
_____ size of glass
_____ shot
_____ syrup

OUR STANDARD

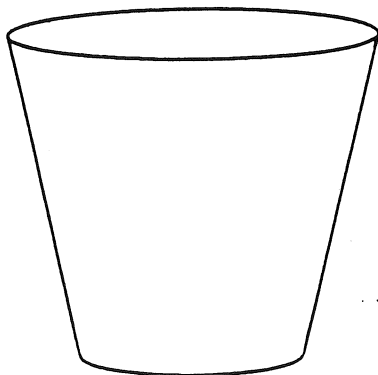
Drink Name & Description:



_____ other
_____ inches of foam
_____ type of milk
_____ size of glass
_____ shot
_____ syrup

OUR STANDARD

Drink Name & Description:



_____ other
_____ inches of foam
_____ type of milk
_____ size of glass
_____ shot
_____ syrup

OUR STANDARD



Drink Variations

Drinks can vary by:

- # of shots - single, double, triple, quad
- type of coffee - regular or decaf or other espresso blend
- size of drink - short (**8 oz.**), tall (**12 oz.**), and grande (**16 oz.**) and larger.
- flavor - addition of a flavored syrup
- foamy/heavy - **more** or **less** foam
- milk type - whole milk, 2%, and skim(skinny)

Standards for these allow you to simplify ordering.

Example: If your standard drink is served tall, double and with whole milk, an order for a double, tall, whole milk, latte to go becomes simply - Latte, to go.

These terms also allow customers to specify exactly what they want.

A latte order can be as complex as:

I'll have a triple, decaf, grande, hazelnut and irish cream, foamy, skinny latte to go.
With a little time on the bar, this new language will be very simple to you.
You will probably find that in your area some of the terms will differ.



Note:

Many bars use the order shown above for "calling" drinks to the barista.



Learning check:

1. Drinks vary in size: Short drinks are _____ oz.; tall drinks are _____ oz.; grande drinks are _____ oz.
2. Foamy means _____ milk.
3. Heavy means _____ foam.
4. Our standard latte has _____ of foam and is served at _____ degrees to go
(refer to your standards).



Drink Variations

Other Drinks:

Americano - espresso poured over hot water. Usually about 4 oz. of water per shot.

Espresso con panna - espresso with a dollop of whipped cream. Con panna means "with cream" in Italian.

Espresso Macchiato - espresso with a dollop of milk foam. Macchiato means "marked" in Italian.

Flavored Latte - a latte with flavor added.

Latte Kaladi - a latte with vanilla, creme de cocoa, and coffee syrup added. about 1 oz for a tall drink.

Flavored Cappuccino - a cappuccino with syrup added. Syrup may be added to the espresso and or steamed into the foam.

Flavored Mocha - a mocha with flavor added.



Iced drinks:

A popular variation not shown in the video, iced drinks are simple but should be made in this order:

1. **Ice** - About 2/3 full in the cup
2. **Milk, Mocha or water**
3. **Shots** - In the case of a flavored iced drink **add** the flavor to the shot while it is extracting. This will help the flavor to mix easily. Pouring espresso directly over the ice can ruin the shot.



Learning Check:

1. Our standard for syrups is _____ oz. for a short, _____ oz. for a tall and _____ oz. for a grande (refer to your standards).
2. An espresso macchiato is an espresso with a dollop of _____ on top.
3. With flavored iced lattes, the flavor is _____ to the shot while it is extracting so that it will mix easily in the drink.
4. Pouring espresso directly over ice can _____ the shot.

STOP HERE - WATCH THE NEXT SECTION OF THE VIDEO.



Maintenance

Proper maintenance of your machine and grinder is essential for good espresso quality.

- Coffee tars build up and taint your shots.
- Burrs need to be kept sharp or your grind will fluctuate and your coffee will taste flat.

This is the maintenance suggested in the video • check your standards sheet for your bar's maintenance schedule.

During the day: • Blow out and wipe steam arms after every use. • Backflush the groups with the blank insert 2-3 times during the day. • ~~Rinse out portafilters after every shot.~~ • Keep the grind adjusted.

Nightly: • Clean out portafilter and baskets • Soak steam arms • Clean out groups with a brush.

At Least Weekly: • Clean out grinder. • Wash bean hoppers. • Clean grinder burrs and doser compartment. • Backflush machine with an espresso machine cleaner. • Soak portafilters in espresso machine cleaner.



Learning Check:

Machine:

1. How many times per day do you backflush? _____
2. When is the machine puro-caffed? _____

Grinder:

1. The doser compartment, burrs, and bean hopper are clean out every _____
2. The grinder burrs are replaced every thousand pounds of coffee or _____ weeks at this cafe.

STOP HERE - WATCH THE END OF THE VIDEO

Maintenance

Proper maintenance of your machine and grinder is essential for good espresso quality.

The following is a list of cleaning tasks that, if followed regularly, will help keep your espresso machine and grinder running properly, will help prevent service calls, and will keep your drinks tasting their best.

Throughout the Day:

- Rinse and Backflush throughout the day with plain water and your blind insert, 3 cycles each time. This should be done twice to three times daily, every single day.
- Ensure that all machine users use ALL groups of the espresso machine equally. There is a tendency to favor one particular group, or to skip one so that it “doesn’t have to be cleaned at the end of the day”. Unfortunately, if a group is not used regularly, the group valve tends to scale up and the group will begin to leak.
- Blow the steam wands out BEFORE and AFTER every single pitcher of milk
- Wipe your wand after EVERY pitcher of milk
- Keep grind adjusted so that shots remain in the acceptable time window.
- Do not pour milk or any other dairy products into the drain tray, as it clogs the drain cup and hose.

Nightly:

- Disassemble portafilters, cleaning baskets and portafilter bodies thoroughly.
- Wash bean hoppers with NON-CITRUS soap and non-abrasive sponge or bar towel.
- Soak steam arms and wipe away all accumulated milk. Try NOT to leave the wands in water overnight.
- Clean grounds from drain tray and drain cup
- Dose all unused coffee from doser compartment

Two to Three Times a Week:

- Backflush with either PuroCaff or DeterCaff, following instructions on the container. Regardless of what the container says, only ½ teaspoon is required to backflush each group properly.
- Soak Portafilters in PuroCaff or DeterCaff
- Clean grinder inlet collar and dosing compartment

Weekly:

- Remove shower screens from machine and scrub the back of the screen and the bottom of the diffuser with a green scrubbie or steel wool. When you hold the screen up to the light, all holes should be open. If more than 30% of the holes are plugged, call Working Joe for replacement screens (approx \$9.00 ea). When re-installing the center screw, start the threading with your fingers and tighten until snug with a short-handled screwdriver (available at any hardware store for less than \$3). Remember that if something strips, it will usually be the four hundred dollar head instead of the five dollar screw. **DO NOT OVERTIGHTEN!**
- Remove all items from the top of the machine and clean the top carefully, trying not to spill too much water into the machine. Do not store syrups or condiments on top of the machine, as they tend to fall in and soil the electronics and plumbing inside.
- Remove the drain tray and clean the inside of the bottom of the machine with a damp towel. Look for drips and leaks, reporting any to Working Joe.

Monthly:

- Regenerate your softener (if applicable)

Quarterly/Semiannually:

Call Working Joe (720-570-2166) to arrange a PM (Preventive Maintenance Visit) for

- Change portafilter gaskets and screens
- Change water filter
- Steam calibration
- Pump calibration
- Temperature calibration (La Marzocco only)
- Check grinder burrs, replacing if necessary
- Check for steam and water leaks
- Check heating element draw (efficiency)

Customer Service

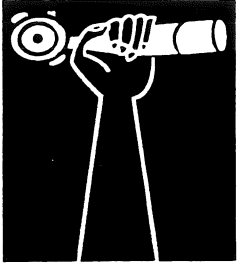
Friendly service makes good drinks taste better!

A good drink with poor service doesn't taste nearly as good. People come to cafes for the atmosphere as well as for the coffee.

Always:

- **Greet customers.**
- **Try to learn their names and their drinks.** This type of service will create regular customers.
- **Help customer order** - A lot of people are still uncomfortable ordering espresso. Don't be a coffee snob.
- **Say thanks** - Their business pays your salary.
- **Be enthusiastic** about the quality of your drinks.
- **Welcome complaints** - Try to fix their drinks and get customers what they want to drink.
- **Have fun** - Making good coffee and delivering good service should be fun.

STOP HERE - WATCH THE END OF THE VIDEO



You have now completed the video
and your workbook,

but your training is not complete!

- Be sure to do the **activities** listed on your sheet with your manager or an experienced barista.
- Study your workbook questions - If you can answer these **easily** the test will be easy for you.
- Take your **test** - Be sure to clarify any answers you missed.
- When you have passed this test and done your activities congratulate yourself - you are now a well - **trained** barista capable of making the best espresso drinks anywhere.



Learning Check:

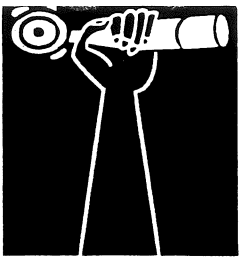
1. After I have completed the workbook I will be sure to do all of the exercises listed on the _____ sheet with my manager or an experienced barista.
2. I will study my workbook so that I can _____ answer all the questions on the test.
3. After this I will take my _____.
4. I am now a _____ barista capable of making great drinks!

The Barista-cratic Oath

I swear to always make great drinks and have fun at all times. I promise to serve even the meanest customer well, realizing that I could be making the latte that turns their life around. I promise to wipe my steam wands after every use and never to scald, overcook or abuse milk in any way. I will always extract my shots to the standards of my bar and smile sweetly in the face of overwhelming crowds of early morning customers. Above all I promise to love, honor and cherish coffee until death do us part.

sign here: _____

witnessed by: _____



Learning On The Bar

Pulling Shots

Dose:

Practice using your bars dosing method.

Look into the doser compartment:

Watch what happens when you pull the lever.

Dose coffee for a double shot - two pulls or fill and scrape.

Tamp:

Pick up the tamper.

Put the portafilter on the counter and tamp a shot of coffee

Check to see that it is level.

Did you give it a firm twist to polish the coffee?

Grind Adjustment:

1. Pull a double shot of espresso and time it.
 - Does it meet your bar's standards for time?
 - If not, adjust the grind.
 - Taste a shot with a good extraction time.
2. Adjust the grind so that the extraction time is 12 seconds.
 - Taste and smell the shot - shots that are too fast will lack body and leave a lingering bitter aftertaste. These shots will smell sour.
3. Adjust the grind so that the extraction time is 35 seconds.
 - Taste the espresso - shots that are too slow will taste very bitter. These shots will smell very strong.
4. Adjust the grind back to the proper time.

Remember that you can taste bad shots through anything (they are mixed with) short of gasoline.

Preparing Milk

Foaming:

Try foaming some milk. Make sure that you:

have enough milk

turn the steam wand on full

foam the milk quickly

keep the milk slightly cooler than for lattes.

Steaming:

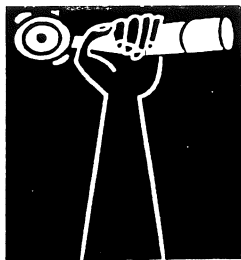
Steam some milk. Be sure to:

keep a hand on the pitcher

use a thermometer

listen to the sound of the milk on the steam arm

make a latte with the milk.



Learning On The Bar

Preparing Milk Cont.

Steam some milk to 140 degrees.

Try to heat exactly the right amount for a tall latte.

Note: The flavor and body of the milk.

The heat of the pitcher in your hand

The sound of the milk on the steam arm.

Steam some milk to 170 degrees.

Try to heat the exactly the right amount for a tall latte.

Note: The flavor and body of the milk.

The heat of the pitcher in your hand

The sound of the milk on the steam arm.

Adding Syrups And Chocolate

Measure and pour one ounce of syrup into a tall glass.

Notice where the syrup is in the cup.

Measure and pour 1/2 ounce of syrup into a short glass.

Notice where the syrup is in the cup.

Have someone show you the correct amount of chocolate for a mocha.

Notice the color of the drink (Note skim drinks are darker).

Making Drinks

Make the four basic drinks to your bars standards.

- Taste the drinks noting sweetness, body, flavors and temperature.

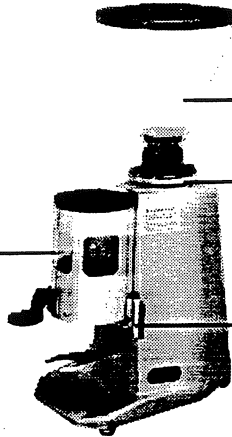
Go over all of the drinks on your menu and make the most popular drinks to your bars standards.

- Taste the drinks noting sweetness, body, flavor and temperature.

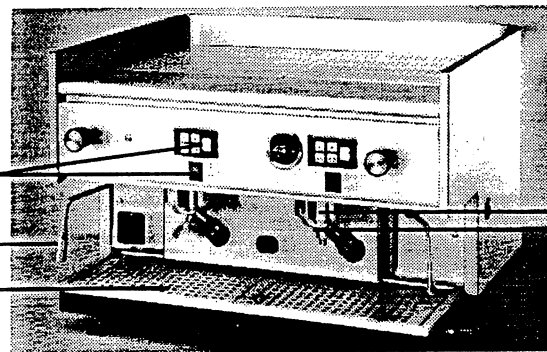
Kaladi Coffee Academy Test

1. What kind of coffee do you use to make espresso at your bar? _____
2. Match the letters to the correct part of the espresso machine and grinder below.

- A) DOSER COMPARTMENT
- B) ADJUSTING COLLAR
- C) DOSER LEVER
- D) BEAN HOPPER



- A) STEAM WANDS
- B) PORTAFILTER
- C) GROUP OR BREWING HEADS
- D) DRIP TRAY
- E) DISPENSE SWITCHES



3. Grind should be _____ and adjusted every morning and constantly as shots are pulled through out the day.
4. Our bar uses a) single b) double shot(s) as the standard for our drinks.
5. Espresso is more chemically complex and _____ than brewed coffee.
a) flavorful b) bitter c) caffeine free
6. Espresso should be served within _____ seconds after the shot has been prepared.
a) 30 b) 60 c) 20
7. True or false - A bad shot can be covered up by using a lot of syrup and chocolate.
8. Extraction time = The amount of time the coffee spends mixed with _____ under pressure from the espresso machine.
a) steam b) water c) the portafilter basket

9. There are three things which affect extraction time. They are:

1) _____ 2) _____ 3) _____

10. Which dosing method is standard for your bar? _____

11. To make a double shot using the doser compartment method you should pull the doser lever _____ times.

12. When using the doser compartment method you should never grind more than _____ hour(s) supply of coffee.

13. A single shot uses about 7 grams of coffee to make a _____ ounce shot in _____ seconds.

14. A double shot uses about 14 grams of coffee to make a _____ ounce shot in _____ seconds.

15. A quad shot is made with _____ grams of coffee to make _____ ounce of espresso.

16. You must always keep your dose _____
a) full b) 14 grams c) consistent

17. A good tamp is _____, level and finished with a twist to polish the surface of the espresso.
a) light b) hard c) medium light

18. If your extraction time is off by a few seconds you can probably change it by changing how _____ you tamp the coffee.

19. If your extraction time is off by more than 6 seconds you will need to adjust _____ to get the right extraction time.
a) machine pressure b) tamp c) your grind

20. If your shots are pulling at 18 seconds and you want 23 second shots you can probably get the right time by:
a (circle one): Tamping
harder/ lighter
b Adjust grind slightly:
coarser/ finer

21. When adjusting the grind always start with a(n) _____ doser compartment before you grind coffee and pull a shot.
a) empty b) full c) well lubricated

22. You will generally need to adjust the grind only _____ notches.
a) 4-5 b) 2 - 4 c) 1-3

23. The best drinks are made with _____ $\frac{3}{4}$ fresh milk.
24. All drinks should be at least _____ fresh milk.
 a) 90% b) $\frac{1}{2}$ c) $\frac{1}{3}$
25. Every time you heat milk it loses _____
 a) mixability b) body and sweetness c) flavor
26. Our bars drinks should be served at _____ degrees in-house and _____ degrees to go.
27. There are two ways to ruin milk:
 Heat it above _____ degrees
 Heat it more than _____ times
28. Write two of the three rules for foaming milk:
 Have enough _____
 Have full _____
29. Foamed milk is used in _____
 a) espresso con panna c) mochas c) cappuccino
30. Steamed milk is used in _____ and _____
 a) espresso macchiattos and Americanos b) lattes and mochas
 c) Iced lattes and cappuccinos
31. You should always have a _____ in your pitchers but your hand and your _____ are probably more accurate with practice.
32. Milk can be foamed _____
 a) once with $\frac{1}{2}$ Fresh milk added b) once c) three times
33. Milk can be steamed or heated _____ and then one more time with the addition of _____ fresh milk.
34. Our standard latte is made with _____ shots of espresso, _____ milk, and has _____ inches of foam. It is served at _____ degrees to go.
35. Our standard cappuccino is a _____.
36. Our standard mocha is made in a _____ cup, with _____ shots of espresso and is served at _____ degrees in house.
37. Foamy means more foam and less _____ in a drink.
 a) steamed milk b) air c) half and half
38. At our bar we add _____ oz of syrup to an 8oz. drink, and _____ oz. of syrup to a 12oz. drink.

39. An Americano is a double shot of espresso poured over
a) ice b) foamed milk b) hot water

40. Flavored drinks should be made in this order

_____ first
_____ second
_____ third

41. Iced flavored drinks should be made with the _____ mixed into the shot while it is pouring on the espresso machine.

Maintenance:

42. You should blow out and _____ steam arms after every use.

43. Every night you should _____ the espresso machine's steam arms.

44. You should backflush your machines with the blank insert _____ times daily.

45. Espresso machines should be cleaned out _____ with a high quality espresso machine cleaner.

46. Grinder burrs, doser compartment and bean hoppers are cleaned _____ on your bar.

Welcome To Espresso Science One

Thank you for purchasing Espresso Science One. The purpose of this tape is to help you to establish standards for the drinks at your bar and an ongoing training program for your business. Espresso Science One is the first of a series of tapes by the Kaladi Coffee Academy that will focus upon bringing quality to all aspects of the espresso business. We look forward to your comments and suggestions.

How To Use This Training Program

Step 1. Copy the Standards, Workbook and Test Sections.

- Make one copy for yourself so you can work through this package and set your standards
- You will need to copy these for each person that you train

Step 2. Familiarize Yourself With the Training Program.

- Watch the video and fill in the workbook referring to Kaladi Standards.
- Do the "Learning on the bar" activities.
- Take and correct your test.

Step 3. Set The Standards For Your Bar.

- Fill in the Standard Section for drinks and maintenance at your bar.
- When in doubt try our standards. They are well grounded in "Seattle Style" espresso.

Step 4. Give the Training to Your Employees.

- Give them the workbook and video to complete
- Put them together with an experienced person at your bar to do the "Learning on the Bar" exercises.
- Give them the test and review the answers with them.

Step 5. Retrain your employees.

- After 4 - 6 weeks have the employees review the training.

Welcome To Espresso Science One

Objectives:

When your barista's have completed Espresso Science One, they should be able to:

- Extract perfect shots**
 - Adjust grind
 - Dose coffee consistently
 - Tamp coffee correctly

- Prepare milk**
 - Foam
 - Steam
 - Tell milk temperatures accurately
 - Use the milk Cycle

- Prepare drinks**
 - Make the four basic drinks
 - Use basic drink vocabulary
 - Make drink variations

- Maintain your machine**
 - Perform basic, daily, and weekly maintenance

- Serve Customers**
 - Be familiar with basic rules of customer service

Kaladi's Bar Standards

Our Bar Espresso

We use KALADI BROTHERS brand of coffee for our espresso.

It is a blend of: CENTRAL AMERICAN AND INDONESIAN COFFEES.

We chose it for our bar because: IT USES THE FINEST HIGH GROWN ARABICA COFFEES, ROASTED IN A SVETZ FLUIDIZED BED ROASTER, PRODUCING AN EXTREMELY AROMATIC ESPRESSO W/ INCREDIBLE BODY

Standard Drink

Our Standard Drink is served:

single/~~double~~

short/~~tall~~

Extraction Times

We adjust our grind using a) single or b) ~~double shots~~

A single shot should pour between ~~20~~ and ~~27~~ seconds for 1 1/8 oz of espresso - including crema.

A double shot should pour between 20 and 30 seconds for 2 1/4 oz of espresso - including crema

Dose

We use the DOSER COMPARTMENT dosing method.

Milk

We use the following types of milk on our bar:

1. SKIM
2. WHOLE
3. 1/2 & 1/2

Drink Temperature

Drinks should be served at: 150° degrees in house and at 160° degrees to go.

Mochas

Mochas should be made with 2 TBSP of chocolate in a tall or 12 oz. drink.

Syrups

Our Drinks use: 1/2 oz of syrup for an 8 oz glass
1 oz of syrup for a 12 oz glass
1 1/4 oz of syrup for a 16 oz glass

All drinks are assumed to be:

of shots: DOUBLE, type of coffee: REGULAR size of drink: TALL type of milk: WHOLE
Location (in house or to go): TO GO [unless ordered otherwise].

Kaladi's Maintenance Standard

Machine:

1. How many times per day do we backflush? 3 to 5
2. When is the machine puro-caffed? ~~3 dot~~ 3 dot four times a week
3. When do we clean the bean hopper and burrs? WEEKLY

Grinder:

1. Grind is adjusted EVERY morning.
2. It is checked and possibly adjusted CONSTANTLY throughout the day.
3. We clean out the doser compartment, burrs and bean hopper every TUES & FRI P.M.
4. We replace the grinder burrs every thousand pounds of coffee or every 4 weeks at this cafe.

Daily:

1. Backflush the machine with the blank insert 2-5 times per day.

Nightly Routine Maintenance:

1. Clean out your portafilters and baskets.
2. Soak the steam arms of the machine.
3. Clean out the drip tray
4. Clean out your groups with brush.

Other Maintenance Procedures:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

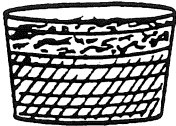


Kaladi's Drink Standards

There are four basic drinks. Other espresso drinks are variations of one of these four.

Espresso = shot or shots of espresso

2 shots



OUR STANDARD

Latte = Espresso mixed with steamed milk

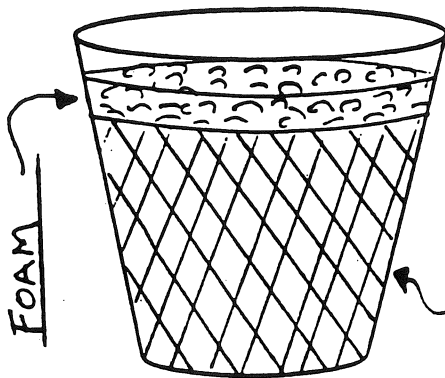
Extract your shots and pour them into your glass. Steam milk to the proper temperature. Pour the milk so that it mixes with the espresso. The foam on lattes should be thoroughly mixed with espresso.

1/4-1/2 inches of Foam

WHOLE type of milk

TALL size of glass

2 shots



OUR STANDARD

ESPRESSO W/ STEAMED MILK

Cappuccino = espresso capped with milk foam. There are two types - classic and dry.

Extract your espresso and put it in your glass. Foam the milk. Layer the foam over the espresso. Cappuccinos should have white foam.

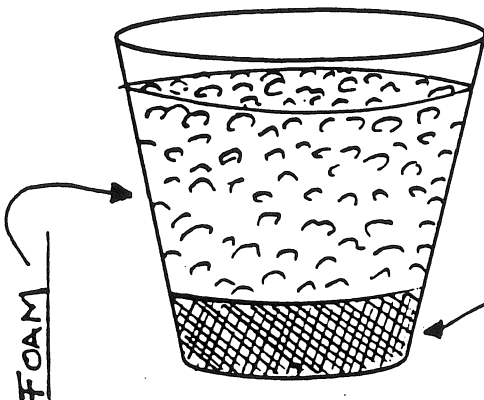
ALL inches of foam

WHOLE type of milk

TALL size of glass

2 shots

OUR STANDARD



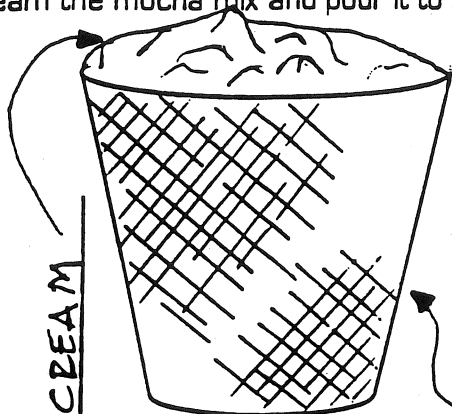
ESPRESSO



Kaladi's Drink Standards

Mocha = Espresso and steamed hot cocoa

Mochas are best with the chocolate steamed into the milk. Extract shots of espresso. Steam the mocha mix and pour it to mix with the espresso. Be sure to cut the foam.



whipped cream
1/4" - 1/2" inches of foam
WHOLE type of milk
TALL size of glass
2 shots

OUR STANDARD

ESPRESSO W/ STEAMED COCOA

Bar Standards

Note: Fill in these sheets with your bar's standards.

Our Bar Espresso

We use _____ brand of coffee for our espresso.

It is a blend of: _____

We chose it for our bar because: _____

Standard Drink

Our Standard Drink is served: _____ single/double _____ short/tall

Extraction Times

We adjust our grind using a) single or b) double shots.

A single shot should pour between _____ and _____ seconds for _____ oz of espresso - including crema.

A double shot should pour between _____ and _____ seconds for _____ oz of espresso - including crema

Dose

We use the _____ dosing method.

Milk

We use the following types of milk on our bar:

1. _____ 2. _____ 3. _____

Drink Temperature

Drinks should be served at: _____ degrees in house and at _____ degrees to go.

Mochas

Mochas should be made with _____ of chocolate in a tall or 12 oz. drink.

Syrups

Our Drinks use: _____ oz of syrup for an 8 oz glass

_____ oz of syrup for a 12 oz glass

_____ oz of syrup for a 16 oz glass

All drinks are assumed to be:

of shots _____ type of coffee _____ size of drink _____ type of milk

Location (in house or to go) _____ [unless ordered otherwise].

Maintenance Standard

Note: Fill in your bar's maintenance standards.

Machine:

1. How many times per day do we backflush? _____
2. When is the machine puro-caffed? _____
3. When do we clean the bean hopper and burrs? _____

Grinder:

1. Grind is adjusted _____ morning.
2. It is checked and possibly adjusted _____ throughout the day.
3. We clean out the doser compartment, burrs and bean hopper every _____.
4. We replace the grinder burrs every thousand pounds of coffee or every _____ weeks at this cafe.

Daily:

1. Backflush the machine with the blank insert 2-5 times per day.

Nightly Routine Maintenance:

1. Clean out your portafilters, and baskets.
2. Soak the steam arms of the machine.
3. Clean out the drip tray
4. Clean out your groups with brush.

Other Maintenance Procedures:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____



Drink Standards

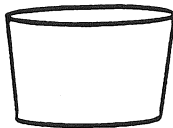
There are four basic drinks. Other espresso drinks are variations of one of these four.

Fill in your standards in the sections below:

Espresso = shot or shots of espresso

_____ shot

OUR STANDARD



Latte = Espresso mixed with steamed milk

Extract your shots and pour them into your glass. Steam milk to the proper temperature. Pour the milk so that it mixes with the espresso. The foam on lattes should be thoroughly mixed with espresso.

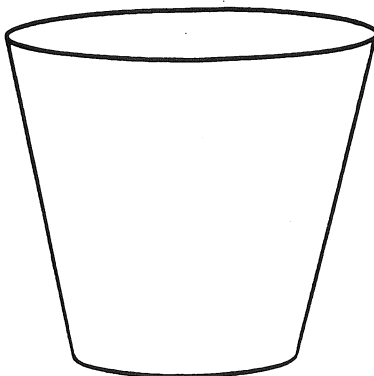
_____ inches of Foam

_____ type of milk

_____ size of glass

_____ shot

OUR STANDARD



Cappuccino = espresso capped with milk foam. There are two types - classic and dry.

Extract your espresso and put it in your glass. Foam the milk. Layer the foam over the espresso. Cappuccinos should have white foam.

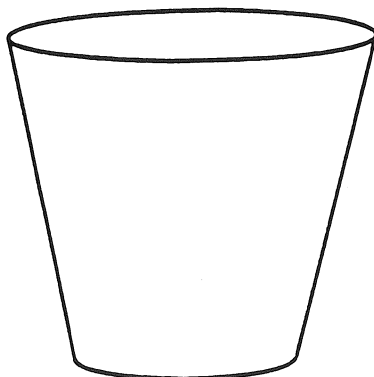
_____ inches of foam

_____ type of milk

_____ size of glass

_____ shot

OUR STANDARD



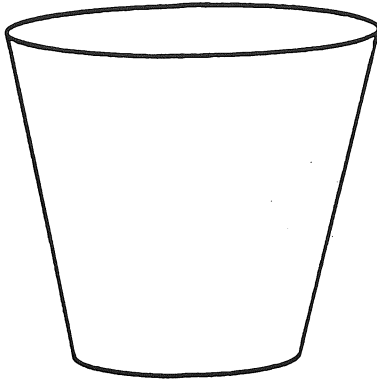


Drink Standards

Fill in other drinks used on your bar:

Drink Name & Description:

_____:

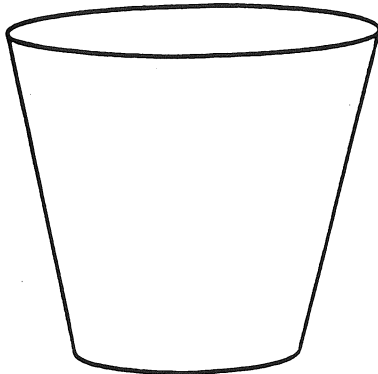


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:

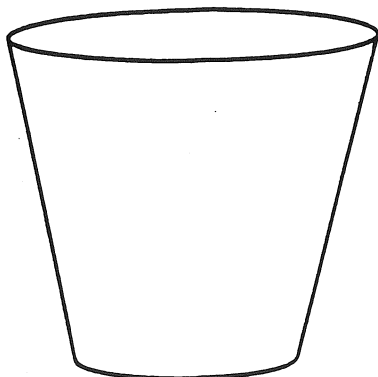


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:



- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

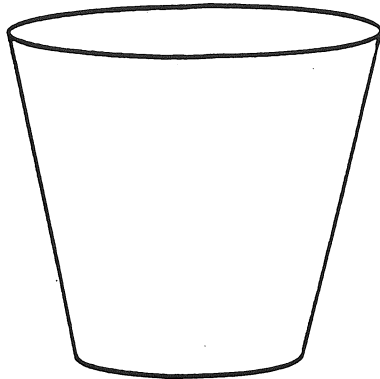


Drink Standards

Fill in other drinks used on your bar:

Drink Name & Description:

_____:

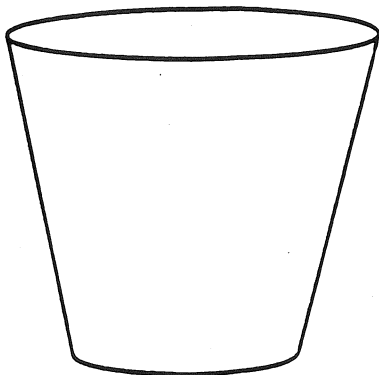


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:

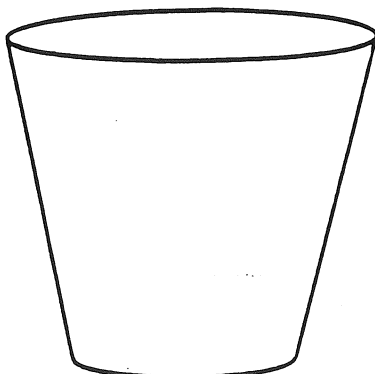


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:



- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

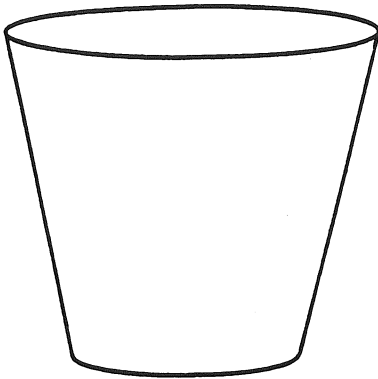
OUR STANDARD



Drink Standards

Mocha = Espresso and steamed hot cocoa

Mochas are best with the chocolate steamed into the milk. Extract shots of espresso. Steam the mocha mix and pour it to mix with the espresso. Be sure to cut the foam.



- _____ whipped cream
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot

OUR STANDARD

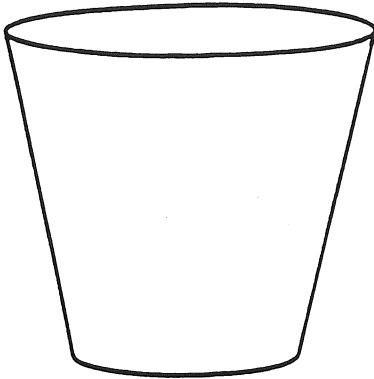


Drink Standards

Fill in other drinks used on your bar:

Drink Name & Description:

_____:

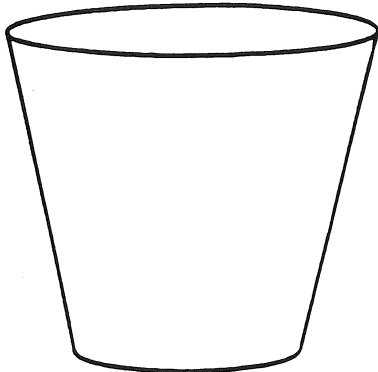


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:

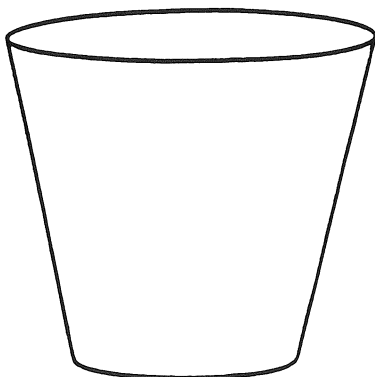


- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

Drink Name & Description:

_____:



- _____ other
- _____ inches of foam
- _____ type of milk
- _____ size of glass
- _____ shot
- _____ syrup

OUR STANDARD

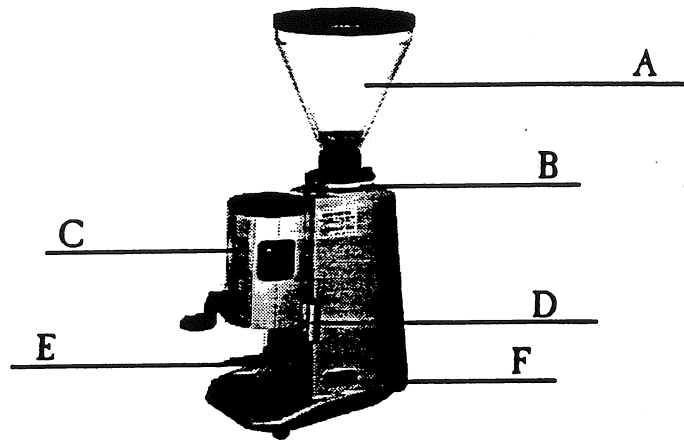
Workbook Answers:

Page 2

1. Refer to your bars standards.
2. Refer to your bars standards.
3. Refer to your bars standards.

Page 3

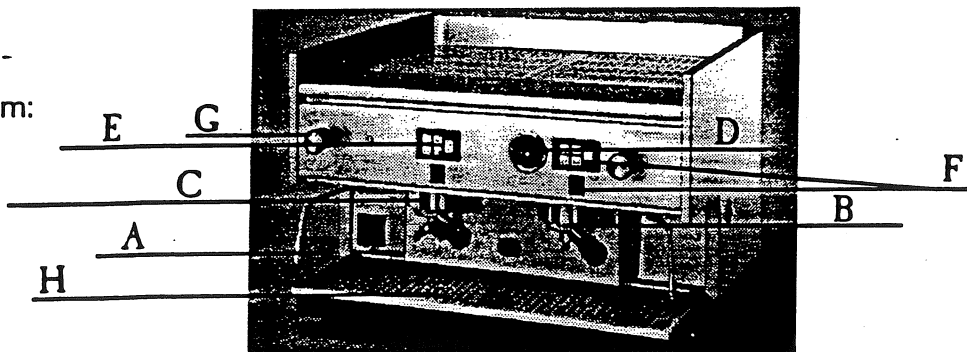
Grinder Diagram:



1. Every - the grind will probably change every night. Before your first drinks are served the grind should be adjusted.
2. Checked- every shot you pour should be watched. With practice you will be able to tell a good pour at a glance. In addition you should time shots occasionally during the day.

Page 4

Machine Diagram:



Page 6

1. Flavorful - espresso is more than just concentrated coffee. It has more oils and more aromatics (gasses) than a brewed cup of coffee. Properly prepared it has a body, aroma, and taste unequalled by any other preparation method.
2. 20 - twenty seconds is the longest you should wait before serving or mixing an espresso into a drink. Once a shot is extracted it begins to react to oxygen and will lose body, aromas and flavors.

3. [Flavors, aromas]. The crema layers is an emulsion of the oils extracted in the brewed espresso.
4. [True]. A bad shot can be tasted through anything. Shots provide the initial flavor and aftertaste of a drink.
5. [Emulsion]. The oils of the coffee mixed or emulsified with water
 [Suspension]. Tiny coffee particles and gas bubbles that are pushed out of a freshly ground coffee by the pressure of the machine
 [Solution]. The parts of the coffee found in brewed coffee, the flavor elements which will dissolve in water

Page 8

1. [Refer to your bar's standards].
2. [single, shot]. All shots need approximately 7 grams of coffee and about an ounce of water. If you try to brew a double shot of coffee [14 grams] to triple shot volume all you will get is a diluted double shot.
3. [21, refer to your bar's standards]. A triple shot should have three times the volume of your single shots.
4. [Refer to your bar's standards].
5. [Coffee, water]. Extraction time is best thought of as the amount of time the coffee and water spend together under pressure from the machine. This time is critical to producing an espresso that tastes good. If the time is too long the shot will taste bitter, too short the shot will taste bitter as well because it will lack colloids that actually coat the tongue and protect your taste buds from the natural sharpness of coffee.
6. [Grind, dose, tamp]. Any of these can affect how fast your shots extract.
 - Grind - Grind setting affects how fine the particles of coffee are.
 - Coarse grind lets water flow freely.
 - Fine grind slows extraction times.
 - Dose - Too large of dose increases extraction time.
 - Too small a dose speeds your shots up -
 - Even one or two grams makes a difference in extraction time. A gram is 1/454th of a pound.
 - Don't guess your dose!
 - Tamp - A hard tamp slows extraction.
 - A light tamp speeds up your shot times.

Page 10

1. [Consistent]. Inconsistent doses will cause your shot times to vary regardless of tamp or grind adjustment.
2. [Refer to your bar's standards].

3. [2]. Every time you pull the doser lever using the doser compartment method you should get approximately 7 grams of coffee. If the doser is running low on coffee your dose will be too low and shot times will be too fast.
[Fill, one]. Coffee kept ground in the doser compartment longer than one hour will taste stale and make bad shots.
4. [Empty, every]. The idea behind the fill, and, scrape method is to grind fresh coffee for every shot. The doser compartment is kept empty and ground only for a shot when the customer orders a drink.
5. [Extraction, inconsistent]. See question 16.
6. [Readjust].

Page 11

1. [Polish]. A good polish on the surface of the coffee indicates that the tamp is hard enough. The polish ensures that water from the machine will penetrate and brew the coffee in your portafilter evenly.
2. [Decrease]. A lighter tamp will let water flow through the coffee more quickly than a hard tamp.
3. [Hard, coarse]. A hard tamp makes sure that the espresso brews evenly.
4. [How hard you tamp]. Tamp can vary extraction times significantly. You can use this until you can re-adjust your grind.
5. [Change your grind]. Sometimes you can change your extraction times by more than 6 seconds by tamp. However, if you find it necessary to vary your tamp a lot you should probably adjust your grind.
6. [Consistent, vary]. A consistent tamp will come with experience. Since tamp pressure makes a difference in extraction time you should keep your tamp pressures the same as much as possible. When extraction times vary, adjust your tamp slightly, and when you have time adjust the grind so that you continue to tamp hard and use a coarse grind.

Page 13

1. [Empty]. If you mix a new grind with your old grind it is impossible to tell if the adjustment you have made is correct.
2. [Refer to your bar's standards].
3. [Refer to your bar's standards].
4.
 - a. [Harder]. A harder tamp will slow your extraction times.
 - b. [Finer]. A finer grind will slow your extraction times.
5.
 - a. [False]. This is probably too much of a difference to make up for by adjusting your tamp.
 - b. [Coarser]. Adjust your grind coarser. This will speed up your extraction times.

6. [1 to 3]. Check your grinder manual for manufacturers recommendations. For most grinder 1-3 notches is sufficient to make a large difference in extraction time:

Page 15

1. [Have enough milk]. If you have too little milk it will get hot too fast and stop foaming.
[Have full steam]. Full steam is necessary to foam milk. If you don't use enough steam the milk will heat up and stop foaming.
[Foam fast]. If you foam slowly you will heat the milk up and it will stop foaming before you want it to.
[Watch temperature]. Foam won't hold heat, so try to keep foamed drinks between 140 and 150 degrees.
2. [Add the right amount of milk]. This will keep your drinks made with mostly fresh milk
[Aerate your pitcher]. Aerating pitchers keeps them quiet
[Watch your temperature]. Use your hands, ears and thermometers to get your milk temperatures close.
3. [Sweetness, body]. Heating milk causes it to lose its natural sweetness and body. Drinks made with twice-heated milk do not taste as good or as rich.
4. [Two, fresh]. Every time you heat milk again you should add at least 1/2 fresh milk. A drink with half fresh milk is almost indistinguishable from a drink that is 100 % fresh milk. Customers may not be able to tell you why the drink tastes better but they will come back for more.
[180 degrees]. Milk heated this hot has an off flavor. When milk gets close to boiling the sugars are caramelized and it gives off a "cooked" smell.
5. [Four]. Use all four ways all the time!
6. [Ear, hand]. Short of using digital thermometers a well - trained barista's hand and ear are the most accurate. Milk always makes the same sounds at the same temperatures. Your hands can become finely tuned using the interplay between a thermometer and sound.
7. [Too]. See #4
8. [Check]. The thermometer becomes a way to check, not to determine milk temperatures.
Thermometers can be off by 10 to 15 degrees - this is too much if you want consistent drink quality.
9. [Refer to your standards].

Page 16

1. [1/2 fresh milk].
2. [One].
3. [1/2].
4. [1/2].

Note: The point this page is clear - add half fresh milk to all your drinks. Sometimes you may have a pitcher with too much milk that has already been heated. If you add half fresh milk it will overflow. The best way to handle this is to use another small pitcher and make drinks one at a time until you have used up most of the already heated milk.

Page 17

Fill in all the standard drinks for your bar!

Page 18

1. [Four variations]. Espresso, Latte, Cappuccino, and Mocha. Most other drinks are simply variations of these.
2. [Steamed]. The steaming process generally creates more than enough foam to make a good latte.
3. ["Capped"]. This is an easy way to remember that there is generally no mixing between the foam and espresso or espresso and milk on the bottom of the drink.
4. [Steamed]. Steaming the chocolate into the milk creates a creamier, smoother - textured drink.

Page 19, 20, 21

[Refer to your standards].

Page 22

1. [8.0 oz., 12.0 oz, 16.0 oz]. Some cafes also use 20oz. glasses.
2. [more].
3. [less].
4. [Refer to your drink standards].

Page 23

1. [Refer to your standards].
2. [Milk foam]. A dollop is about a tablespoon of milk gently dropped onto the shot.
3. [Added]. Adding the flavor to the shot melts it so that it will mix with the cold milk. It is a good idea to mix the drink as well.
4. [Ruin]. Some people say that this shocks the espresso, making it bitter.

Page 24

- 1- 4. [Refer to your standards].

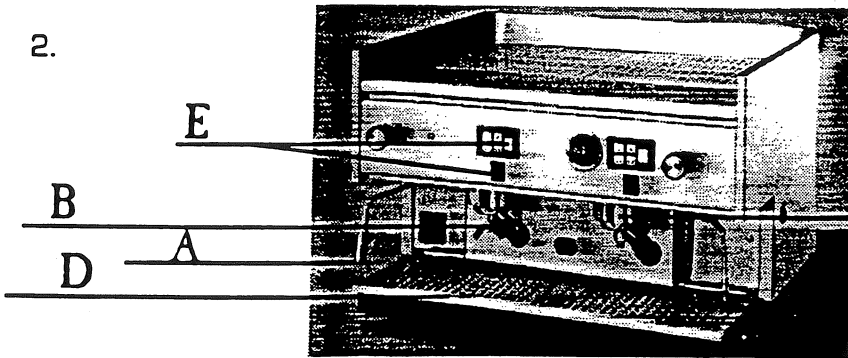
Page 26

- Do your activities.
- Take your test.

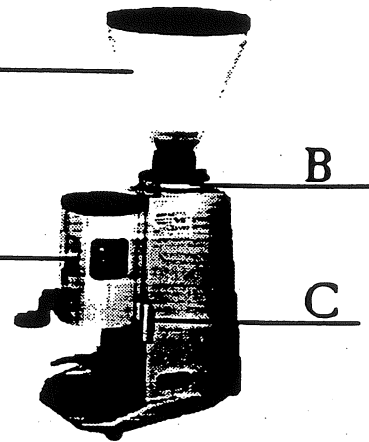
Test Answers:

1. Refer to your bar's standards.

2.



D _____



3. [checked]. How shots pour should always be watched by the baristas and grind should be adjusted as soon as possible. The goal should be to never let an improperly extracted shot be served.

4. Refer to your bar's standards.

5. [Flavorful]. A good espresso will be strong but not bitter. Bitterness in espresso is a sign of stale coffee or other problems.

6. [20 seconds]. Use shots as soon as possible after they have brewed. A shot will lose flavor and become flat and bitter sitting on the bar. In addition, a shot should never be pre-packed and left in the machine to brew later.

7. [False]. Strong flavors will obscure a bad shot but the taste will be evident. Customers will probably not complain but may go elsewhere for a better espresso.

8. [Water]. Espresso machines should brew espresso between 194 to 197 degrees. Steam is not used to make the coffee. Extraction time is important because the time coffee and water spend together under pressure is one of the most important factors in the creation of a good balance of flavors, colloids and aromatics.

9. [Dose, tamp, grind]. Any of these can affect how fast your shots extract. Grind affects how fine the particles of coffee are.

Coarse grind lets water flow freely.

Fine grind slows extraction times.

Dose - Too large of dose increases extraction time.

Too small a dose speeds your shots up - shots that pour too fast can be very bitter.

Even one or two grams makes a difference in extraction time. A gram is about 1/450th of a pound.

Don't guess your dose!

Tamp - A hard tamp slows extraction.

A light tamp speeds up your shot times.

10. [Refer to your bar's standards].
11. [Two]. For a double shot. One time for a single shot.
12. [One]. Ground coffee stales noticeably within an hour. The best shots use very fresh coffee.
13. [Refer to your bar's standards].
14. [Refer to your bar's standards].
15. [Refer to your bar's standards]. 28 grams of coffee to make twice the volume of your bars standard for a double shot. Quad shots are two double shots of coffee.
16. [Consistent]. Inconsistent dose will cause your extraction times to vary.
17. [Hard]. the best shots use a hard tamp.
18. [Hard].
19. [Your grind]. This is not a hard and fast rule but if your shot times are off by more than six seconds you will probably need to adjust your grind. Never use a light tamp to make up for a grind that is too fine - this will produce inferior shots even if your extraction times are good.
20. A) [Harder]. A) harder tamp slows extraction times. B) [Finer]. Finer grind slows extraction times. You should probably adjust your grind a little bit in this case. However, there are some grinders that make too large an adjustment even, turned only one notch. If this is the case for your grinder you will have to vary your shots by how you tamp frequently.
21. [Empty]. Any coffee left in the doser compartment from a previous adjustment will throw off the extraction time of the shot you are timing in order to set the grind. You will probably get very frustrated if you forget to do this.
22. [1-3]. Most grinders have both numbers and notches on their adjusting collars. You should use the smallest increments (generally notches) and make small adjustments until you are very comfortable with adjusting your grind. As mentioned above, some grinders have notches that are placed too far apart to enable you to pull good shots - your times will often be over or under. It can be extremely frustrating to go from too fast a shot to too slow in one notch. I would recommend getting a new grinder as soon as possible.
23. [100 %]. Fresh in this case means that it has not been heated before.
24. [1/2]. A drink where half the milk has been heated once and the other half is fresh is almost indistinguishable from a drink that uses 100 % fresh milk.
25. [Body and sweetness]. This is why you want your drinks to be at least 1/2 fresh milk
26. [Refer to your bar's standards].

27. [180 degrees, twice]. The milk if heated above 180 is scalded and will have an off taste. If milk is heated twice it will have lost a lot of sweetness and body. This is why you should have 1/2 fresh milk in all drinks.
28. [Have enough milk, have full steam]. Too little milk in the pitcher will cause it to get hot too fast and stop foaming. Full steam is necessary to foam milk. If you don't use enough steam the milk will heat up and stop foaming. Foam fast - If you foam slowly you will heat up the milk and it will stop foaming before you want it to.
29. [Cappuccinos]. Cappuccinos are espresso "capped" with milk foam.
30. [Lattes and mochas].
31. [Thermometer, ear]. A thermometer is especially helpful for new baristas so, it is a good idea to keep them in your pitchers at all times. Your ear and your hand will probably become very accurate with time. Keep your thermometers calibrated!
32. [Once]. I don't know exactly why - It just won't do it twice.
33. [Once, 1/2].
34. [Refer to your bar's standards].
35. [Refer to your bar's standards].
36. [Refer to your bar's standards].
37. [Steamed milk].
38. [Refer to your bar's standards].
39. [Hot water].
40. [Flavor, shot, milk]. The shot will melt the syrup so it will mix easily with the hot milk.
41. [Flavor].
42. [Wipe]. this keeps the health department happy and your steam arms clean. Keep clean rags just for the steam wands and separate rags for the counter.
43. [Soak]. This will soften any residue on the steam arms and make them easy to wipe clean in the morning before they are used.
44. [Refer to your bar's standards].
45. [Refer to your bar's standards].
46. [Refer to your bar's standards].