



Barista Skills Professional

Mandatory Activities Worksheet



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SECTIONS	MAXIMUM TIME (MINS)
1. WATER CHEMISTRY EVALUATION	30
2. TAMPING & DISTRIBUTION EXERCISE	60
3. SIMPLE FINANCIAL CALCULATION EXERCISE	30
TOTAL	120 MINS

GENERAL INSTRUCTIONS TO CANDIDATES:

- These exercises form a mandatory part of your course but will not be tested by examination.
- You are expected to evaluate your own findings from these exercises. There are no prescribed outcomes or expected results.

1. WATER CHEMISTRY EVALUATION

Objective:

- To evaluate the effects of water chemistry (alkalinity and total hardness) on the sensory qualities of brewed coffee.

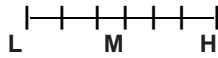
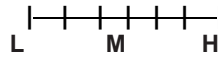
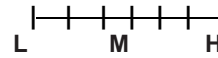
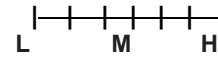
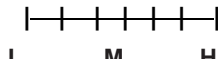
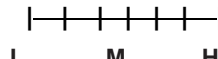
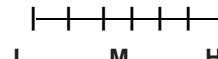
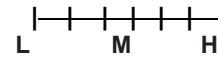
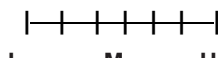
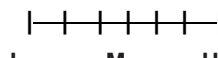
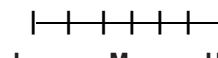
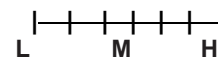
Time: 30 minutes

Equipment:

- The equipment described in the SCA Cupping Protocol here: <https://sca.coffee/research/protocols-best-practices>
- Plus, 3 manual kettles and an accurate thermometer

Instructions:

- Obtain from the AST 750mls each of 3 different water types (very hard, SCA ideal, very soft/distilled).
- Retain approximately 20mls of each water for testing.
- Grind up adequate coffee for 9 cupping bowls at a fixed grind size and in a single, continuous batch.
- Using 1 x kettle per water type, brew 3 identical bowls of coffee, per water type, taking care to deliver each water at a consistent temperature.
- Before tasting, withdraw 20mls of coffee from at least 1 bowl per set and retain for testing.
- Test the retained water samples for Temporary and Permanent Hardness and plot on the SCAE Water Chart, using a ppm CaCO₃ equivalent scale (your examiner will explain this).
- Test the retained coffee for TDS % and Extraction %.
- Complete the Sensory & Measured Attributes table below.
- Complete the Conclusion section after you fill in the table below.

SENSORY & MEASURED ATTRIBUTES			
SET 1 (WATER 1)			
ALKALINITY	TOTAL HARDNESS	TDS%	EXTRACTION %
SOURNESS	SWEETNESS	BITTERNESS	BODY
			
OTHER DESCRIPTORS (E.G. CHALKY, FLAT, HEAVY, WEAK ETC)			
SET 2 (WATER 2)			
ALKALINITY	TOTAL HARDNESS	TDS%	EXTRACTION %
SOURNESS	SWEETNESS	BITTERNESS	BODY
			
OTHER DESCRIPTORS (E.G. CHALKY, FLAT, HEAVY, WEAK ETC)			
SET 3 (WATER 3)			
ALKALINITY	TOTAL HARDNESS	TDS%	EXTRACTION %
SOURNESS	SWEETNESS	BITTERNESS	BODY
			
OTHER DESCRIPTORS (E.G. CHALKY, FLAT, HEAVY, WEAK ETC)			

Conclusion:

Did you notice any differences between the sets? If so, what were they?

Was the effect of alkalinity and permanent hardness consistent with the indications on the SCAE Water Chart?

2. TAMPING & DISTRIBUTION EVALUATION

Objective:

- Evaluate the effects of different distribution methods on brewed espresso.
- Evaluate the effects of different tamping methods on brewed espresso.

Time: 60 minutes

Equipment:

- 1 x commercially available distribution tool (e.g. OCD)
- 1 x correctly fitting flat based tamper (usually 58.4mm diameter)
- 1 x incorrectly fitting flat based tamper (usually 57-58mm diameter)
- 1 x set of scales with a range exceeding 40kgs/90lbs (usually bathroom scales) A standard espresso production setup
- A standard espresso measuring setup (refractometer and associated tools)
- Bottomless portafilter (optional, but useful for visual feedback)

Instructions:

- Use any particular tamping tool or distribution routine, but routine must be repeatable and will be your control brew.
- Use scales or any other accurate method to find a consistent tamp pressure.
- Make 3 double espressos to the recipe/method calibrated by the AST.
- Measure actual dose/yield for each brew and calculate accurate EBF/Ratios.
- Test and taste each brew.
- Calculate mean averages and standard deviation (SD) for each parameter (your trainer will help with this and explain why these are useful data points).
- Record the results in Table 1: Control Recipe/Method in the Results section below.

**Unless Otherwise Instructed by Your Trainer,
You May Choose Only One Experiment: A Or B, From The Choices Below**

A. Distribution Method Test

- As a group, decide which two different distribution methods you would like to evaluate. (E.G horizontal settling vs finger strike distribution).
- You should use the scales to ensure consistent tamp pressure throughout.
- Using the fitting tamper and the scales, prepare 3 double espressos to the control recipe, using your first distribution method
- Record the results in Table 2: Test Method 1 below.
- Using the fitting tamper and the scales, prepare 3 double espressos to the control recipe, using your second distribution method.
- Record the results in Table 3: Test Method 2 below.
- Complete the Conclusion section after you fill in the Results table.

B. Tamping Method Test

- As a group, decide which two different tamping methods you would like to evaluate. (E.G fitting vs non-fitting, light vs heavy, grind, settle and tamp vs grind and tamp, flat base vs non-flat base).
- You should use the scales to ensure consistent tamp pressure throughout, unless you are testing tamp pressure variation.
- Prepare 3 double espressos to the control recipe, using your first tamper/tamping method.
- Record the results in Table 2: Test Method 1 below.
- Prepare 3 double espressos to the control recipe, using your second tamper/tamping method.
- Record the results in Table 3: Test Method 2 below.
- Complete the Conclusion section after you fill in the Results table.

Results:

TABLE 1: CONTROL RECIPE/METHOD				
	EBF%	RATIO	TDS %	EXT %
BREW 1				
BREW 2				
BREW 3				
AVERAGE				
SD				
	ACIDITY	SWEETNESS	BITTERNESS	BODY
BREW 2 (ONLY)	L H	L H	L H	L H

TABLE 2: TEST METHOD 1				
	EBF%	RATIO	TDS %	EXT %
BREW 1				
BREW 2				
BREW 3				
AVERAGE				
SD				
	ACIDITY	SWEETNESS	BITTERNESS	BODY
BREW 2 (ONLY)	L H	L H	L H	L H

TABLE 3: TEST METHOD 2				
	EBF%	RATIO	TDS %	EXT %
BREW 1				
BREW 2				
BREW 3				
AVERAGE				
SD				
	ACIDITY	SWEETNESS	BITTERNESS	BODY
BREW 2 (ONLY)	L H	L H	L H	L H

Conclusion:

Did you notice any clear trends when comparing the results of test method 1 to your control method? If yes, what did you notice?

Did you notice any clear trends when comparing the results of test method 2 to your control method? If yes, what did you notice?

Did you notice any clear trends when comparing the results of test method 1 to test method 2? If yes, what did you notice?

3. SIMPLE FINANCIAL CALCULATIONS

Objective:

- Understand how costs and sales volumes are used in determining the price of menu items.

Time: 30 Minutes

Part A: Determining Cost of Goods Sold

Scenario:

- There is a café called “Only Lattes.”
- This café only sells one menu item which is a 12-ounce/355 ML hot café latte.
- This latte is sold for €5 plus tax*.

Instructions:

- In the table below, the first two columns contain some of Only Lattes’ costs, broken down by unit.
- As a group discuss and identify which available costs should be included in the cost of goods sold column
- Total these costs to determine the cost of goods sold

Available Costs	€	Cost of Goods Sold (variable costs)	€
Roasted coffee	0.4		
Electricity	1.2		
Paper cup	0.06		
Lid	0.02		
Rent	2		
Milk	0.4		
Direct Labor	.3		
Insurance	.05		
Accounting Fees	.05		
		Cost of Goods Sold Total:	

*Tax is collected on behalf of the GOVERNMENT and is NOT part of the Revenue (Sales) so calculate all without Tax (e.g. VAT etc.).

The cost of goods sold is what percentage of the selling price?

Part B: Determining Breakeven Sales Volume Based on a Set Price

Scenario:

- The café Only Lattes has grown successfully and has moved into a larger building with higher cost in rent and utilities.
- The café owners do not want to raise the price of the hot café lattes.

Instructions:

- Below is a table of the café's new fixed costs.
- Using the cost of goods sold calculated above, as a group determine how much revenue from the sale of each latte can go toward the fixed costs listed in the chart below.
- Based on the resulting calculation, as a group determine how many lattes would have to be sold to also cover the fixed expenses listed in the chart.

Monthly Fixed Costs	€
Rent	3,000
Equipment leases	1,500
Accounting fees, Insurance, Utilities etc.	500
Total:	5,000(€)

$$\text{Unit Price €5} - \frac{\text{COGS}}{\text{COGS}} = \frac{\text{Contribution Margin}}{\text{Contribution Margin}}$$

$$\text{Fixed Costs of €5,000} / \frac{\text{Contribution Margin}}{\text{Contribution Margin}} = \frac{\text{Break Even Sales Volume}}{\text{Break Even Sales Volume}}$$