FREE PRINTABLE TEMPLATE

The Menu Engineering Worksheet

Find out which menu items make you money, which ones quietly cost you, and exactly what to do about each one. Fill it out with a pencil and your POS report.



What's inside

1. **How the matrix works**
   The method, the 4 categories, the 6 formulas
2. **A worked example**
   8 entrées, fully calculated

A. **Plate cost cards**
   Cost every item, line by line

B. **Menu analysis sheet**
   Popularity and margin for up to 18 items

C. **Your matrix**
   Sort every item into its quadrant

D. **Action plan**
   What you'll change, and by when

Before you start, gather:

- [ ] Your POS product-mix report for one period (30 days works well)
- [ ] Your latest invoice prices for every ingredient
- [ ] Your recipes or portion specs
- [ ] A calculator and a pencil

Start a timer.
Write your start time here, then see how long the whole worksheet takes you.

Start time: _____

STEP 1 · LEARN THE METHOD

How the menu engineering matrix works

Menu engineering scores every item on two things: **popularity** (how often it sells compared with the rest of the category) and **profitability** (its contribution margin: the dollars left after plate cost). The method comes from Kasavana & Smith (1982) and is still the industry standard.

POPULARITY (menu mix %)

Workhorses (also called Plowhorses)

High popularity · Low margin

WHAT TO DO

- Trim the portion or swap a costly ingredient
- Nudge the price up a little
- Pair with a high-margin side or add-on

Stars

High popularity · High margin

WHAT TO DO

- Protect the recipe and portion
- Give it the best spot on the menu
- Test a small price increase

Dogs

Low popularity · Low margin

WHAT TO DO

- Remove it, or rework it into a Puzzle
- Keep only if it serves a real purpose
- (e.g., the only vegan option)

Puzzles

Low popularity · High margin

WHAT TO DO

- Move it to a better menu position
- Rename it or rewrite the description
- Have servers recommend it

Low — **PROFITABILITY (contribution margin)** — High

The formulas you'll use

Contribution margin (CM)
= Menu price - Plate cost

Food cost %
=Platecost÷ Menu price

Menu mix %
= Item units sold ÷ Total units sold

Total CM
=Units sold × CM

Popularity threshold
=(1÷Numberofitems) × 70%

Average CM
= Total CM of all items ÷ Total units sold

The two rules. If an item's menu mix % is at or above the popularity threshold, it's **High** popularity. If its CM is at or above the average CM, it's **High** profit. Everything else is Low. **Tip:** compare like with like. Run entrées against entrées and cocktails against cocktails, over the same time period. The 70% factor is the standard allowance so an item doesn't need a perfectly equal share of sales to count as popular.

STEP 2 · SEE IT DONE

Worked example: 8 entrées, one month

A sample bar & grill pulled 30 days of entrée sales from its POS and costed each plate. Here's every number, filled in.

	A Units sold	B Menu mix %	C Menu price	D Plate cost	E Food cost %	F Item CM	G Total CM	H Popularity	I Profit	J Category
Classic Burger	220	22.0%	$16.50	$5.20	31.5%	$11.30	$2,486.00	H	H	Stars
Fish Tacos	170	17.0%	$16.00	$4.10	25.6%	$11.90	$2,023.00	H	H	Stars
Chicken Tenders	260	26.0%	$13.00	$4.60	35.4%	$8.40	$2,184.00	H	L	Workhorses
Mac & Cheese	120	12.0%	$12.00	$3.90	32.5%	$8.10	$972.00	H	L	Workhorses
Ribeye	60	6.0%	$38.00	$15.50	40.8%	$22.50	$1,350.00	L	H	Puzzles
Seared Salmon	70	7.0%	$28.00	$10.20	36.4%	$17.80	$1,246.00	L	H	Puzzles
Veggie Wrap	55	5.5%	$13.00	$4.80	36.9%	$8.20	$451.00	L	L	Dogs
Cobb Salad	45	4.5%	$14.00	$5.60	40.0%	$8.40	$378.00	L	L	Dogs
Totals	**1,000**	**100.0%**					**$11,090.00**			

The two cut-off lines

POPULARITY THRESHOLD

(1 ÷ 8 items) × 70% = **8.75%**

AVERAGECM

$11,090 ÷ 1,000 units = **$11.09**

Mix % at or above 8.75% = High popularity.
CM at or above $11.09 = High profit.

What this menu is telling the owner

Chicken Tenders is the best seller but earns only $8.40 a plate. Cutting $0.50 of plate cost adds about $130 a month.

Ribeye earns the most per plate ($22.50) but is only 6% of sales. Move it up the menu and have servers suggest it.

Cobb Salad and **Veggie Wrap** are low on both. Rework them or cut them to simplify prep.

Burger and **Fish Tacos** carry the menu. Keep portions tight and consider a small price test.



WORKSHEET A

Plate cost cards

Cost one menu item per card, using your most recent invoice prices. Photocopy this page for as many items as you need. Example: a $42.00 case of 6 × 64 oz = 384 oz, so the cost per oz is $42.00 ÷ 384 = **$0.11**.

Menu item: _____ Menu price: $ _____ Category: _____

INGREDIENT	RECIPE QTY	UNIT	COST PER UNIT	INGREDIENT COST

Plate cost (add up the last column): $ _____ Food cost % = plate cost ÷ menu price = _____ %

Menu item: _____ Menu price: $ _____ Category: _____

INGREDIENT	RECIPE QTY	UNIT	COST PER UNIT	INGREDIENT COST

Plate cost (add up the last column): $ _____ Food cost % = plate cost ÷ menu price = _____ %

Menu item: _____ Menu price: $ _____ Category: _____

INGREDIENT	RECIPE QTY	UNIT	COST PER UNIT	INGREDIENT COST

Plate cost (add up the last column): $ _____ Food cost % = plate cost ÷ menu price = _____ %

Don't forget the small stuff: garnish, sauces, sides, oil, and to-go packaging all count toward plate cost.

WORKSHEET B

Menu analysis

One row per item, one category per sheet. Fill columns A and C–D first, total column A, then work left to right.

Category: _____ Period from: _____ to: _____ Prepared by: _____

Menu item	A Units sold from POS	B Menu mix % A÷total A	C Menu price	D Plate cost Worksheet A	E Food cost % D ÷ C	F Item CM C − D	G Total CM A × F	H Popularity HorL	I Profit HorL	J Category S·W·P·D
TOTALS		**100%**								

Column G total = Total CM. Column A total = Total units sold. Carry both to Worksheet C to get your two cut-off lines, then come back and fill in H, I, and J.
Category key: S = Star W = Workhorse P = Puzzle D = Dog

WORKSHEET C

Your cut-off lines and matrix

Calculate the two cut-offlines,markH orLforeveryitemonWorksheet B, then write each item into its quadrant.

Popularity threshold

Number of items on Worksheet B (N): _____

1 ÷ N = _____

× 70% = _____ %

MENU MIX % (COL. B) AT OR ABOVE THIS = H

Average contribution margin

Total CM (col. G total): $ _____

÷ Total units (col. A total): _____

= Average CM: $ _____

ITEM CM (COL. F) AT OR ABOVE THIS = H

POPULARITY (menu mix %)

Workhorses	Stars
High pop. / Low margin	High pop. / High margin
Dogs	**Puzzles**
Low pop. / Low margin	Low pop. / High margin

Low — **PROFITABILITY (contribution margin)** — High

WORKSHEET D

Your action plan

Pick the changes worth making. Small moves add up: $0.50 more margin on an item that sells 300 a month is $150a month, or $1,800 a year.

Stars · Protect & promote

ITEM	ACTION	TARGET (PRICE, COST, OR SPOT)	DONE
			☐
			☐
			☐
			☐

Workhorses · Raise the margin

ITEM	ACTION	TARGET (PRICE, COST, OR SPOT)	DONE
			☐
			☐
			☐
			☐

Puzzles · Raise the sales

ITEM	ACTION	TARGET (PRICE, COST, OR SPOT)	DONE
			☐
			☐
			☐
			☐

Dogs · Rework or remove

ITEM	ACTION	TARGET (PRICE, COST, OR SPOT)	DONE
			☐
			☐
			☐
			☐

Stop your timer.

How long did this take, start to finish? Now picture doing it every month, for every category.

Finish time: _____ Total time: _____ Next review date: _____

MENU ENGINEERING IN ORCA

You just did it by hand. Orca does it in a few clicks.

Everything on the last six pages (plate costs, sales counts, the math, the matrix) is built into Orca's Menu Engineering tool, using the recipes and sales data already in your account.

	BY HAND	IN ORCA
Cost every plate	Pull invoices, convert pack sizes, and cost each ingredient line by line	Plate costs come straight from your Recipe Builder recipes at your current inventory prices
Count what sold	Export a POS product-mix report and match it to your menu	Sales come in from your connected POS
Run the math	Ten columns of calculator work for every item	Menu mix, food cost %, CM, and both cut-off lines calculated for you
Sort the matrix	Check every item against two cut-off lines	Every item sorted into Stars, Workhorses, Puzzles, and Dogs automatically
Test a change	Recalculate the whole sheet for each "what if"	Model price and portion changes and see the margin impact before you commit
Update recipes	Rewrite the recipe card and re-cost it by hand	Publish recipe edits straight to Recipe Builder
Keep it current	Out of date the next time a vendor changes a price	Re-run it any time with your latest costs and sales

~800
hospitality operators run on Orca

Since 2015
helping bars, restaurants, clubs, and hotels control costs

$100K+
a year saved by one client after Orca uncovered 15% beverage loss

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