FREE MINI GUIDE

YOUR FIRST FACTORY PIVOT TABLE

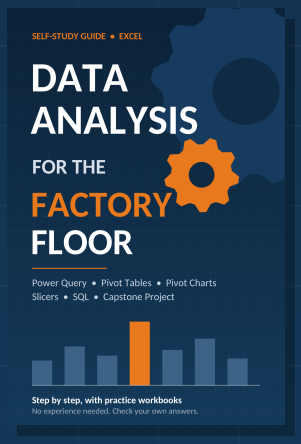
Find the machine that scraps the most, in about 15 minutes.

- No experience needed
- Excel for Windows
- Practice data included

From the book

Data Analysis for the Factory Floor

Power Query, pivot tables, charts, slicers, SQL



BEFORE YOU START

Why pivot tables are a factory analyst's best friend

A factory produces data all day: pieces made, pieces scrapped, minutes lost. A pivot table answers questions about thousands of rows in seconds, without writing a formula. Which machine scraps the most? Which shift makes the most units? You can change the question with a drag.

WHAT YOU NEED
Microsoft 365 Excel, or Excel 2016 or later for Windows, and about 15 minutes. Excel for Mac and Excel for the web look a little different, so some buttons may be in other places.

Type in the practice data

Open a new workbook. Starting in cell A1 of Sheet1, type this small production log. **Type, do not copy:** your fingers learn the steps. Type the dates as 2026-10-01 so that Excel stores real dates.

Date	Line	Machine	Shift	Units	Scrap	DownMin
2026-10-01	L1	M1	A	480	12	20
2026-10-01	L1	M2	A	450	30	45
2026-10-01	L2	M3	B	500	10	15
2026-10-02	L1	M1	B	470	18	30
2026-10-02	L1	M2	B	430	41	60
2026-10-02	L2	M3	A	510	8	10
2026-10-03	L1	M1	A	490	9	10
2026-10-03	L1	M2	A	440	35	50
2026-10-03	L2	M3	B	495	12	25
2026-10-04	L2	M3	A	505	6	5

Units is the number of pieces made, Scrap is the rejected pieces and DownMin is the minutes the machine was stopped.

THREE TOTALS TO REMEMBER
4,770 units made, **181** pieces scrapped and **270** minutes of downtime. You will use these to check your work. If your totals are different, look for a typing mistake before you go on.

STEP BY STEP

Build your first pivot

1. Ask the question first

OUR QUESTION

Which machine scraps the most? The field that groups the data is Machine. The number we want to add up is Scrap. Deciding this first stops you dragging fields around hoping for an answer.

2. Turn the data into a Table

Click any cell inside the data and press **Ctrl + T**. Make sure *My table has headers* is ticked and click OK. On the Table Design tab, type **tblProduction** in the Table Name box. A Table grows by itself, so your pivot will include new rows later.

3. Insert the pivot

Click inside the Table, then choose **Insert > PivotTable**. Check that the table is tblProduction, choose *New Worksheet* and click OK. The PivotTable Fields pane appears on the right.

4. Drag the fields

Drag **Machine** into the **Rows** box and **Units** into the **Values** box. Your pivot should match this:

Row Labels	Sum of Units
M1	1,440
M2	1,320
M3	2,010
Grand Total	4,770

CHECK BEFORE YOU GO ON

The grand total must be **4,770**, the same as the sum of the Units column. If it is different, stop and find out why before going further.

5. Add a second measure

Drag **Scrap** into Values as well. You now have two columns:

Row Labels	Sum of Units	Sum of Scrap
M1	1,440	39
M2	1,320	106
M3	2,010	36
Grand Total	4,770	181

Machine M2 made fewer units than M3 but scrapped nearly three times as much. A pivot surfaces a finding like this in seconds.

FROM TOTALS TO A FINDING

Share of scrap, and scrap rate

6. Show each machine's share

Right-click a Scrap value, choose **Show Values As > % of Grand Total**.

Row Labels	Scrap as % of total
M1	21.5%
M2	58.6%
M3	19.9%
Grand Total	100.0%

M2 made about 28% of the units but caused almost 60% of all scrap. This single view often drives a decision.

7. Calculate the scrap rate

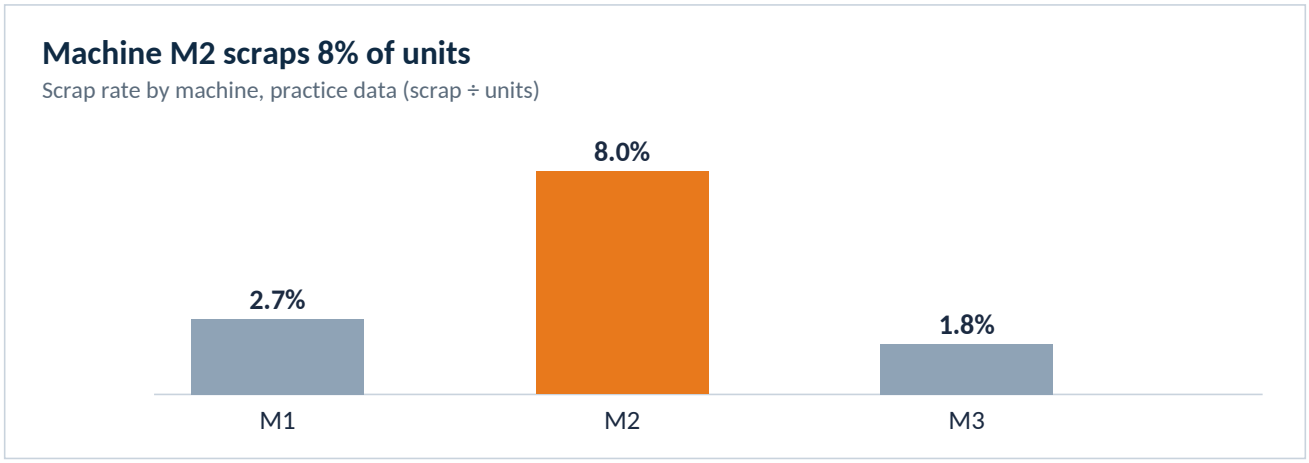
Totals favour the machines that run more. A **rate** is fairer. Click inside the pivot, then choose **PivotTable Analyze > Fields, Items & Sets > Calculated Field**. Type the name **ScrapRate**, and in the formula box type **= Scrap / Units** (use the Insert Field button to avoid typing mistakes). Click Add, then OK. Drag ScrapRate into Values and format it as a percentage.

Machine	ScrapRate
M1	2.7%
M2	8.0%
M3	1.8%
Grand Total	3.8%

WHY THE GRAND TOTAL IS 3.8%

A calculated field adds up the parts first, then divides: 181 ÷ 4,770 = 3.8%. It is **not** the average of the three percentages. Averaging rates is one of the most common mistakes in factory reports.

Say the finding in the title



A good chart title states the finding, not just the field names, and uses one highlight colour for the item that needs attention. In the complete book you turn pivots like this into pivot charts and dashboards.

PRACTISE

Try it, check it, avoid the traps

TRY IT YOURSELF

Build a pivot of **DownMin by Machine**, sorted from largest to smallest. To sort, click the drop-down arrow on Row Labels, choose More Sort Options and pick *Descending by Sum of DownMin*.

Expected answer: M2 155, M1 60, M3 55, total 270.

Check yourself

Which area of the pivot holds the numbers you want to add up?

Answer: Values.

Your pivot shows Count of Units where you expected a total. Why?

Answer: Excel counts when the column has text or blanks. Clean the data type, then switch to Sum.

You added rows to the source and the pivot did not change. What now?

Answer: Refresh the pivot (Alt + F5), and make sure the source is a Table.

Common mistakes

- Dragging fields around without a question. Decide what you want to know first.
- Trusting a pivot without checking its grand total against the source.
- Typing over a pivot cell. Edit the source, then refresh.
- Leaving numbers stored as text, such as “480 pcs”. A pivot can only add up real numbers.

REFRESHING

A pivot does not update by itself when the source changes. Right-click the pivot and choose Refresh, or click the pivot and press **Alt + F5**.

PUT IT INTO PRACTICE

Your quick-check: before you trust a pivot

Tick each box on screen, or print this page.

- [ ] I wrote the question before choosing the fields.
- [ ] My data has one header row, with no blank rows, totals or notes inside it.
- [ ] Numbers are real numbers, not text such as “480 pcs”.
- [ ] My source is an Excel Table, so new rows are included.
- [ ] The grand total matches the total of the source column.
- [ ] Rates are worked out from totals, not by averaging percentages.
- [ ] I renamed columns so that a reader can understand them.
- [ ] I refreshed the pivot after changing the source.

NEXT STEP

You have built one pivot. Ready for the whole workflow?

Real factory data arrives messy, in many files, and managers want one clear page.
The next page shows what the complete book teaches you, step by step.

Turn the page >

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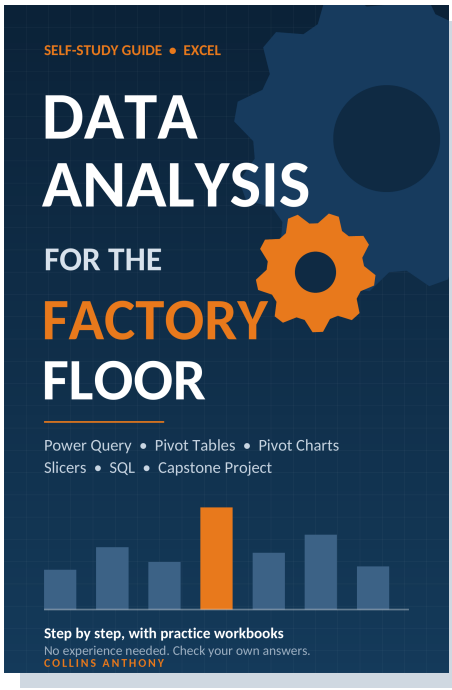
YOUR NEXT STEP

From one pivot to a full production dashboard



You have just done the first step: turning rows of numbers into an answer. The book, Data Analysis for the Factory Floor, shows you how to do it with the messy, real-world data you meet at work, one click at a time.

By Collins Anthony, Jeneconk Education

What this free guide did not cover

- How to clean a messy export, once, for good
- How to combine many files into one table
- How to build charts and slicers that update
- How to design a one-page dashboard
- How to link tables and ask questions in SQL
- How to prove your skill with a capstone project

Inside the complete book

13 chapters, each with a click-by-click walkthrough

82 pages with diagrams and real Excel screenshots

6 downloads: practice workbooks, large dataset, answer key, cheat sheet

1 certificate of completion for your capstone

Works with Microsoft Excel 2016 or newer for Windows. No prior experience needed.

Get Data Analysis for the Factory Floor

Instant digital download on Selar. Questions? info@jeneconk.com

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