Activity: the cycle count

Chapter 2, Managing Inventory

Manuel D. Rossetti

Work in pairs. 20 minutes.

Names: _____

The count sheet. The maintenance storeroom's counter counted eight records this morning. The storeroom accepts a record within **2%** of the recorded quantity.

Item	Description	Unit cost	Recorded	Counted
M-01	Hydraulic oil, 55 gallon drum	$700.00	9	9
M-02	Welding wire, 33 pound spool	$55.00	40	39
M-03	Paint booth filter	$7.00	300	297
M-04	Press die spring set	$1,450.00	2	2
M-05	Safety gloves, pair	$1.50	600	594
M-06	Conveyor drive belt	$330.00	3	2
M-07	Grinding disc	$2.40	200	200
M-08	Robot weld tip	$3.00	80	92

Part A. Predict

Rank the three accuracy figures, strict match, within tolerance and by value, from highest to lowest before computing any of them. Which single record do you expect to matter most to the maintenance supervisor?

Part B. Three figures from one sheet

1. For each record, compute the difference and the error as a percentage of the recorded quantity.
2. Report accuracy by strict match, within the 2% tolerance, and by value (one minus the absolute dollar discrepancy over the recorded dollar value).
3. Which figure should the storeroom report to the plant manager, and what does it hide?

Part C. How often to count

Let p be the monthly probability that a correct record goes wrong, and n the months between counts. The average accuracy over the cycle is

$$A(n) = \frac{1 - (1 - p)^n}{np}$$

1. The storeroom's records go wrong at $p = 0.025$ a month. Find the longest count interval that holds average accuracy at 95% or better. How many counts a year is that?
2. Repeat for the weld tips, whose records go wrong at $p = 0.05$ a month.

Part D. How many to count

The plant's auditor wants the storeroom's accuracy estimated within ± 3 percentage points at 95% confidence, and last year's audit put it at 90%. How many records must be counted? How many for ± 1.5 points?

Part E, if you have time. Reading the chart

The storeroom has run a weekly sample of 200 records at a long-run accuracy of 90%. The number found accurate each week:

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Accurate	181	178	176	182	165	179	177	184	183	186	182	185	187	184

1. Compute the center line and the three standard error limits.
2. Which weeks, if any, signal a change? Look for a point outside the limits, and for a run of seven or more on one side of the center line.
3. For each signal, what would you look for, and what would you not do?

Exit ticket (tear off and hand in)

Name: _____

1. Why is counting a record that has had no transactions since its last correct count close to worthless?

2. True or false, and why: a week whose point falls inside the control limits carries no signal.