



Early Age Development
CONNECTING EDUCATION WITH LIFE

NO-TECH ROUTE

Twelve real problems. Find one. Fix it. Prove it.

Twelve complete projects that need paper, a pen and conversations. No electricity, no internet, no device. They reach the same findings as the High-Tech route and are marked against the same twenty points.

12 projects, one per industry	120 steps, written out in full	/20 how the work is marked	0 cost, to anyone, ever
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THE TWELVE PROJECTS IN THIS BOOKLET

01 The Sixty-Litre Dinner
Agriculture & Climate

03 The Prayer-Time Error
Space & Cosmos

05 The Four-Hundred-Rupee Leak
Energy & Smart Systems

07 Where The Money Actually Went
FinTech & Ethical Economy

09 The Lie This Street Believes
Media & Deepfake

11 The Cheapest Clean
Matter & Chemistry

02 The Sugar You Did Not Order
Health & Preventive Medicine

04 The Thing That Keeps Breaking
Engineering & Robotics

06 The Ten Minutes That Teach
Education & Future Learning

08 The Rule Nobody Follows
Law & Governance

10 The Trigger
Psychology & Behaviour

12 The Question Nobody Asked
Sociology & Future Society

We print this with your school's name on the cover. Your brand on the front, ours beneath it, printed and delivered to your campus - and one of your teachers trained free. Tell us the route and how many.

Ask for a school edition

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Start here – what you are actually going to do

This page has no special words in it. Everything after it explains how the work is checked, and you do not need any of that today.

Pick one thing that annoys your household. The electricity bill. The food that gets thrown away. A rule nobody follows. Something you already complain about.

Measure it for about two weeks. Properly, the same way each time, and write the number down with the date beside it. Do not change anything yet - this number is the whole foundation, and you cannot get it back later.

Then change one thing. One. Not five. Something that costs nothing.

Measure the same number again, the same way, for three more weeks.

At the end you can say a sentence like this one, and back every word of it:

"Our fridge was costing us four hundred and thirty rupees a month. I moved it away from the cooker and it dropped to three hundred and ten. Here is how I know, and here is what else might explain it."

That is the entire method. Six weeks, a few hours a week, alongside school.

Six things people ask first

How old do I need to be? There is no age. If you can read these steps and write down a number, you can start.

Do I need to buy anything? No. Nothing at all. Every project works with a pen and paper.

Do I need a teacher? No. Every step is written out. A teacher helps, but nothing here waits for one.

What if my change does not work? That is a real result and it scores higher than a win you cannot prove. Nobody loses marks for an honest failure.

What does it cost? Nothing. Reading, running and marking a project is free.

Where do I start? Turn to the contents, pick the project whose title annoys you most, and read its first three steps tonight.

If a word in this booklet stops you

There is a page called **The words this booklet uses** a few pages ahead. Seventeen words do all the work in here, and that page explains every one of them in plain language.

How this booklet works

Every project in here runs the same way. You measure something ordinary in your own life until you can say what it costs. Then you change one thing and measure it again. That is the whole method, and it is why the result is worth something to somebody other than your teacher.

ACT 1 - STEPS 1 TO 5

Find the problem

Measure it. Talk to one person who deals with it for a living. Work out what it costs, per week or per year. You end with a costed problem statement: whose problem, what it costs, and the evidence behind the number.

ACT 2 - STEPS 6 TO 10

Fix it and measure

Change one thing. Not five. Measure the same quantity the same way and report what happened, including when nothing happened. You end with a before figure, an after figure, and an honest answer about what caused the difference.

Nine things you hand in – progress reads 0/9

#	DELIVERABLE	STRAND	DUE	WHAT IT FEEDS
1	Question card	Research	Week 2	The artefact - whether the change is traceable to a costed problem
2	Expert interview pack	Outreach	Week 3	Gate one - the expert row
3	Evidence log	Research	Week 4	Gate two - the baseline; and the artefact
4	Failure log	Process	Week 5	The process and its failures
5	The build	Design	Week 5	The artefact
6	One-page explainer	Design	Week 5	The artefact
7	Identity card	Branding	Week 5	The artefact
8	Relations ledger	Outreach	Week 6	Gate one - all ten relationships
9	Defence video	Defence	Week 6	The defence

Two gates. Neither can be waived.

The ten relationships: This is a gate, not a scored criterion. Ten logged relationships are required per project: 1 expert, 3 people the problem affects, 3 peers who reviewed the work before it was finished, 3 people who saw the finished work and replied. Until all ten are logged with evidence, the work is not marked at all and no score out of 20 is issued. The assessor returns it unmarked with the missing rows named.

The baseline: This is a gate, not a scored criterion. An effect claimed without the same quantity measured before the change is returned unmarked, because there is nothing to measure against. A baseline counts only when it carries a number with its unit, the dates it was taken on, the instrument or source behind it, and a written method that the after-measurement then repeats. Where any row below is true, the assessor issues no score out of 20, names the row, and sets the baseline again with the after-period rerun from it.

Four tiers – capability, never age

Declare your tier in week two. It can be revised down once, without penalty, before your evidence log goes in. Nobody is asked for a birthday or a grade.

TIER	WHAT "SECURE" EVIDENCE MEANS HERE
Starter	Secure means the written method was followed with no gap: same instrument, same times, every zero entered rather than left blank, and one stranger asked in person. Sample size and published comparison are not asked for here.
Practitioner	Secure means the learner chose what to measure and defends that choice, every borrowed figure is cited to its page or table, and one chart is read correctly by a stranger with nobody standing there explaining the axes.
Researcher	Secure means the protocol was written and dated before the first reading, three after-weeks are justified rather than assumed, and the error from the instrument, the divisor and any borrowed coefficient is quantified rather than mentioned.
Contributor	Secure means the figure is set against published work by name, the method survives a specialist who disagrees with it, and every raw reading and source is published openly so a stranger can recompute the result.

How the work is marked

The artefact – 6

Is the one change traceable to the costed problem, and was the same quantity measured the same way before and after, so a stranger could repeat both halves?

The process and its failures – 6

Does the record show a change that was actually run, slipped somewhere, and was measured honestly anyway, rather than a plan written up after the result was known?

The defence – 8

Asked whether this would have happened anyway without the change, does the learner reason from their own before-and-after data, or repeat the result more slowly?

A well-measured failure scores higher than an unmeasured success.

An effect claimed without a baseline measured before the change is returned unmarked, because there is nothing to measure it against. If your change did not work and you measured it properly, say so plainly - it costs you nothing and it is worth more than a tidy number nobody can check.

Before you knock on any door

This programme sends you to measure real households and to talk to real adults. That is what makes the result worth something, and it is the part with rules. These are not suggestions.

Consent, every time

- Ask before you measure anybody's home, spending or behaviour, in words, and write down that they agreed.
- Anybody may stop at any point without giving a reason. When they do, stop the same day and do not argue.
- Never call twice at a door that said no, and never go back to anyone who asked not to be called on again.
- If you are under 18, a parent or guardian signs before you contact any adult outside your school.

Where you go, and with whom

- Never go to fieldwork alone. Two of you, or a known adult present.
- Never enter anybody's home. Measure at a counter, a gate, a reception, your school, or on a call.
- An adult at school and an adult at home know where you are and when you will be back.
- Never open, unscrew, reach into or climb to reach anything. Read meters and machines from a normal standing distance or not at all.

What never goes into a submission

Phone numbers, addresses, email addresses, house numbers, bank or card numbers, anybody's income, a photograph of a face nobody agreed to, or a photograph of another person's child. Names only, and codes where a name is not needed. Never record a complaint about a named person - write the problem, not the accusation.

If you are running this with a class

Your school supplies the consent form, the child protection policy and the offsite risk assessment that apply where you are, and EAD does not. Ask your safeguarding lead which ones to use before week one. **[SCHOOL SAFEGUARDING LEAD - CONFIRM]**

If a conversation ever turns to something that worries you about a person's safety, stop the project conversation, promise no secrecy, write down what was said in their own words the same day, and hand it to an adult you trust.

The words this booklet uses

Fifteen words do most of the work in here. Learn these and every project reads easily.

WORD	WHAT IT MEANS HERE
Baseline	The number as things are now, before you change anything, with the date and the instrument written beside it. Everything is compared against this, and you cannot get it back once you have changed something.
After-figure	The same number, measured the same way, once the change has been running.
Costed problem statement	One page saying whose problem it is and what it costs them per week or per year - in money, litres, minutes or waste - with the evidence behind that number.
The one change	The single thing you change. One, not five. If two things move at once, nobody can say which one caused the result.
Confounder	Something else that changed during the same weeks and might explain your result instead of your change - a wedding, a price rise, a guest, a season. You list them rather than hide them.
Instrument	The thing you measure with: a scale, a meter, a stopwatch, a tally sheet. Use the same one before and after.
Divisor	What you divide by to make figures comparable - per person, per plate, per week. Keep it the same both times.
Protocol	The written rule for how you will measure, agreed and dated before you start, so the after-measurement repeats the before exactly.
Sample	The people, days or items you actually measured, out of all the ones you could have.
Null result	The change made no difference. This is a real result and it scores well when it is measured properly.
Artefact	The thing you hand in that shows the work: the chart, the log, the build, the explainer.
Evidence log	Every reading with its date, time and source. The spine of the whole project.
Failure log	Everything that went wrong, dated, and what each slip did to the comparison. Six of the twenty marks live here.
Relations ledger	Ten names with roles, dates and what each person replied.
Defence	Ten to twelve minutes of questions you have not seen, about your own numbers. Eight of the twenty marks.
Gate	A rule that must be met before anything is marked at all. There are two, and neither is a score.
Tier	How deep your work goes - Starter, Practitioner, Researcher or Contributor. You declare it. It is never your age.

The twelve projects in this booklet

1. The Sixty-Litre Dinner

Agriculture & Climate - litres per plate

2. The Sugar You Did Not Order

Health & Preventive Medicine - level teaspoons per household per week

3. The Prayer-Time Error

Space & Cosmos - minutes, signed as observed minus published

4. The Thing That Keeps Breaking

Engineering & Robotics - failures per 100 uses

5. The Four-Hundred-Rupee Leak

Energy & Smart Systems - rupees per month

6. The Ten Minutes That Teach

Education & Future Learning - per cent of the immediate score retained

7. Where The Money Actually Went

FinTech & Ethical Economy - rupees per week

8. The Rule Nobody Follows

Law & Governance - percentage of observed instances

9. The Lie This Street Believes

Media & Deepfake - per cent of twenty people

10. The Trigger

Psychology & Behaviour - occurrences per day

11. The Cheapest Clean

Matter & Chemistry - rupees per use, against a removal score out of five

12. The Question Nobody Asked

Sociology & Future Society - minutes per household per week, reported as hours per street per month

The Sixty-Litre Dinner

Weigh tonight's dinner, then count the litres of water standing behind it that nobody at the table sees.

THE QUESTION

How many litres of water and how many rupees stand behind one plate of a dinner you actually eat, and which single item carries most of both?

Every litre on your plate was rained on, pumped or piped somewhere upstream, and the food industry is now asked to report those litres to buyers, lenders and regulators. Water-footprint accounting is paid work in farming, food processing and export, because a shipment with no defensible water number is getting harder to sell. The method you use on one dinner is the method used on a whole supply chain: mass, a published coefficient, a cited source, and an honest statement of what the number leaves out.

ACT 1 - FIND

You take one dinner your household cooks anyway and account for it item by item: raw mass on one plate, rupees actually paid, and litres of water per kilogram taken from a published source you name beside the number. You also weigh what gets thrown away across seven days, because food thrown out carries its whole footprint with it.

A one-page costed problem statement carrying four lines: whose dinner, litres of water per plate, rupees per plate, and litres and rupees per year at the rate this household actually eats it. Beside it sits a bar chart of litres per item, largest bar first, and a source line against every coefficient used.

ACT 2 - FIX

You change exactly one thing - an ingredient swapped, a portion cut, a shop changed, or one form of waste stopped - and cook the same dish on three dates across three weeks. Every weighing, price and source is repeated identically, so the only moving part is the change you named.

A four-bar chart of litres per plate, baseline against weeks one, two and three, with the mean after-figure, the difference in litres and rupees per year, a named list of confounders, and the household's recorded answer on whether the change stays.

YOU MEASURE

litres of water behind one plate of one dinner

BEFORE

Raw mass in grams of every ingredient on one plate, multiplied by a published litres-per-kilogram figure with its source recorded beside it, plus the litres attached to food weighed into the bin over the same seven days. Taken before anything is changed.

AFTER

The identical dish measured the identical way on three dates across three weeks, using the same scale, the same divisor and the same published sources, reported as a mean with all three weeks shown separately.

Safety and ethics - not optional

- Measure a meal the household was cooking anyway. Do not cook anything extra for this project and do not use the stove, hot oil or a sharp knife for it - every weighing is of raw, cold ingredients before they go in the pot.
- Nobody's plate gets smaller for the sake of the number. Weigh what is served, and if a portion or an ingredient changes in Act 2, agree it first with the person who has to eat it.
- Weigh raw meat, fish and eggs in a bowl or on a plate, never directly on the scale surface. Wash your hands and the bowl afterwards, before touching the notebook or the phone.
- Handle only your own household's food waste, in a bowl kept for the purpose, and wash your hands after every weighing. Never open a neighbour's bin, a shop's bin or a street container.

WHAT YOU USE - NO-TECH ROUTE

A kitchen scale, or a marked measuring cup and a one-litre bottle for anything liquid

A notebook ruled into six columns with a pen and a ruler: item, grams, rupees, litres per kilogram, source, litres on plate

The household's shop receipts, or a card carrying prices copied at the shop counter

A hand-copied or printed water-footprint table with the source written across the top, obtained from a library, a college, a print shop or a person with a connection

Squared paper for the bar charts, drawn to a stated scale

One bowl kept by the sink for the week's food waste

A scale, a notebook and a pen produce the same litres figure; the only thing borrowed from outside is the published coefficient table, and you borrow that from a person, a library or a printed page and write its source on it.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Choose the meal 30 MINUTES

Pick one dinner your household cooks anyway and lock it as the meal you will measure four times.

- Ask whoever cooks which dinner repeats most often, and write the dish and its usual night at the top of a fresh page.
- List every item that goes into it on one line each, including oil, salt, tea and anything drunk alongside it.
- Rule six columns across the page: item, grams, rupees, litres per kilogram, source, litres on plate.
- Draw the plate as served and label what is on it, or photograph it if a phone is available.

WRITE THIS DOWN

The dish name, the date, the number of people served, and one ruled row per ingredient.

DONE WHEN

The page carries one row per item and a dated sketch or photograph of the served plate.

Watch out. Choosing a meal you never normally eat because it sounds interesting. Pick the repeated, boring one - you have to cook it three more times.

2 Weigh the plate 45 MINUTES

Measure the raw mass of every ingredient that ends up on one person's plate.

- Zero the scale with the empty bowl on it, then weigh each raw ingredient in grams before it goes in the pot.
- Where there is no scale, measure by level cupfuls, then weigh one cupful once on a shop's scale and write that conversion at the top of the page.
- Where the pot serves five, divide every figure by five and write the division out longhand so it can be checked.
- Weigh the served plate too, and record raw and cooked mass separately, because the published figures attach to raw mass.

WRITE THIS DOWN

Raw grams per person for every item, the divisor used, and a mark against anything estimated rather than weighed.

DONE WHEN

Every row carries a raw mass in grams per person and no row says 'about'.

Watch out. Weighing cooked rice and treating it as raw. Cooked grain has absorbed water and weighs far more than the dry grain it came from - weigh it dry, or write down the conversion you used and its source.

3 Price the plate 40 MINUTES

Work out what one plate cost in rupees from prices actually paid, not from memory.

- Collect the receipts, and where there are none walk to the shop and copy the current price per kilogram onto your card.
- Ask whoever shops where each item was bought and write the shop name beside the price.
- Do the arithmetic longhand in the margin: price per kilogram divided by one thousand, multiplied by grams on the plate.
- Add cooking fuel as one line, marked as an estimate, with the reason written beside it.

WRITE THIS DOWN

Rupees per item per plate, the shop behind each price, and the total rupees for one plate.

DONE WHEN

The plate total is one rupee figure and every price traces to a receipt or a shop visit written in the log.

Watch out. Using a price you remember from last year. Walk to the shop; prices move faster than memory does.

4 Borrow the figures 60 MINUTES

Obtain a published litres-per-kilogram table on paper and convert your masses to litres by hand.

- Ask one person with a connection, a college library or a print shop for the Water Footprint Network product figures, or the Our World in Data table of freshwater use per kilogram, printed or copied out.
- Write the source across the top of the page: the organisation, the table name and the date it was obtained.
- Copy only the ingredients you need, one per row, with units, and write the source again in the source column of each row.
- Multiply litres per kilogram by kilograms on the plate longhand, leaving the working visible on the page.
- Underline the largest single figure and write one line on what that coefficient includes and excludes, in the source's own words.

WRITE THIS DOWN

Litres per item, the total litres for one plate, and the source written beside every coefficient.

DONE WHEN

You can name the item carrying the biggest share of the litres and point to the printed line the figure came from.

Watch out. Copying a number from somebody's memory or a conversation. If it has no printed source you can show, it does not go in the table.

5 Weigh the waste 45 MINUTES SPREAD OVER SEVEN DAYS

Measure the food this household throws away over one week and attach its full footprint to it.

- Keep one bowl by the sink for seven days; after every meal scrape uneaten food into it and weigh it before it goes in the bin.
- Weigh anything thrown out uncooked from the fridge as well, item by item, and write the reason it was thrown.
- Apply the same borrowed coefficient to the wasted mass, because the water was already spent before the food was binned.
- Rule two more lines at the foot of the page: grams wasted this week, litres thrown away this week.

WRITE THIS DOWN

Grams wasted each day for seven days, the reason for each, and the week's litres-wasted total.

DONE WHEN

Seven daily figures exist, including the zeros, and the weekly litres total sits at the foot of the page.

Watch out. Skipping the day nothing was wasted. A zero is a measurement; a blank is a hole in the week.

Act 2 – fix it and measure steps 6 to 10, ending with a proven effect

6 Name the cost 50 MINUTES

Finish the costed problem statement on one page and choose the single change you will make.

- Write four lines: whose problem this is, litres per plate, rupees per plate, and litres and rupees per year at this household's real frequency.
- Draw the litres-per-item bar chart on squared paper, largest bar first, with the scale stated and the finding as the title.
- List three possible changes - swap an ingredient, cut a portion, change where an item is bought, stop one form of waste - with the litres each would save.
- Choose one and write: 'I will change X to Y for three weeks and expect litres per plate to fall from A to B.'
- Read the page aloud to whoever cooks and have them sign and date it if they agree to the change.

WRITE THIS DOWN

The one-page costed problem statement, the three candidates with predicted savings, and the chosen change as one testable sentence.

DONE WHEN

Somebody who was not there reads the page once and repeats your litres number back correctly.

Watch out. Choosing the change that saves most on paper but nobody at home will accept. A change abandoned in week one measures nothing - choose the one that survives.

7

Agree the rules 40 MINUTES**Write the protocol that keeps the after-measurement identical to the before-measurement.**

- Write what stays fixed: same dish, same scale, same number of people, same shops, same weighing point in the cooking.
- Write what is allowed to move: only the one thing you named in step six.
- Rule three blank labelled rows for weeks one, two and three before any data exists, and write the three dates beside them.
- Write your prediction on the page, date it, and have one person witness it with their signature.

WRITE THIS DOWN

The protocol as a numbered list, the three dates, and the witnessed, dated prediction.

DONE WHEN

The page holds empty labelled rows waiting for three weeks and a signed prediction that predates the data.

Watch out. Deciding the measurement rules after seeing week one. Anything rewritten once data exists goes in the failure log with the date.

8

Measure week one 45 MINUTES**Cook the meal with the change in place and measure exactly the quantities you measured before.**

- Weigh every raw item again in grams per person, using the same scale and the same divisor.
- Write down the prices paid this week rather than copying the Act 1 prices down the page.
- Use the same borrowed coefficient table - do not change source in the middle of an experiment.
- Weigh this meal's waste into the same bowl and add it to the running count.
- Write what went wrong: a substitute ingredient, an extra guest, a forgotten weighing.

WRITE THIS DOWN

The week one row complete - grams, rupees, litres, waste - plus a dated failure entry.

DONE WHEN

Week one carries every column the baseline had, and the failure log holds at least one honest entry.

Watch out. Crossing out the row for the ingredient you swapped away instead of writing zero. Write the zero; the comparison depends on the same rows existing in both periods.

9

Weeks two and three 60 MINUTES ACROSS TWO WEEKS**Repeat the identical measurement twice more and compare all three weeks against the baseline.**

- Cook and measure on the two booked dates, changing nothing except what the protocol allows.
- Add the three after-weeks and divide by three, longhand, to get the mean litres per plate.
- Draw four bars on squared paper to one stated scale: baseline, week one, week two, week three.
- List every confounder you can name: guests, a price rise, an ingredient out of stock, a different cook, a different appetite.
- Write the change as a number and as a percentage, and say plainly whether three measurements is enough to be sure.

WRITE THIS DOWN

The four-bar chart, the mean after-figure, the difference in litres and in rupees per year, and the confounder list.

DONE WHEN

You can state the before number, the after number, and at least two reasons the difference might not be your doing.

Watch out. Reporting the best of the three weeks. Report all three, including the week that went backwards - a well-measured failure outscores an unmeasured success.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record what the household will keep.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Read the one-page explainer to three people who eat this meal and write down what each of them said.
- Send or hand the chart to the expert you interviewed with one question: what would you have measured that I did not.
- Ask the household in front of a witness whether the change stays and why, and write the answer down word for word.
- Complete the relations ledger with ten names, roles, dates and what each person replied.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, and the household has said on record whether the change stays.

Watch out. Calling it a success because the household said they liked it. The metric is litres and rupees - report those first and opinions second.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card naming the dish, the household and the number of eaters, and the question: how many litres and rupees stand behind one plate of this, and which item carries most.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for an agronomist or irrigation engineer, your plate figures attached as one page, the date and channel of the request, and the reply recorded word for word.

3 - RESEARCH - WEEK 4**Evidence log**

Every weighing in grams with its date, every price with the shop it came from, and every litres-per-kilogram coefficient with the exact source line beside it. Nothing unsourced survives here.

4 - PROCESS - WEEK 5**Failure log**

The weighings you missed, the ingredient substituted mid-experiment, the week the swap was abandoned, the guest who doubled the pot, and what each of them did to the comparison, all dated.

5 - DESIGN - WEEK 5**The build**

The measuring set-up itself - scale, waste bowl, ruled table or sheet - together with the four-bar comparison chart of litres per plate, baseline against the three after-weeks, on one axis.

6 - DESIGN - WEEK 5**One-page explainer**

One page a neighbour reads in ninety seconds: the dish, the litres, the rupees per year, the one change, the three-week result, and what this figure cannot tell anybody.

7 - BRANDING - WEEK 5**Identity card**

A name and a one-line promise for the measurement, so the household can refer to it by name, plus the single sentence you want repeated at somebody else's dinner table.

8 - OUTREACH - WEEK 6**Relations ledger**

Ten names with dates and replies: one agronomist, three people who eat this meal, three peers who checked your arithmetic, and three people you sent the chart to who answered.

9 - DEFENCE - WEEK 6**Defence video**

Under three minutes on camera: the plate, the litres figure, the source of every coefficient, the one change, the three-week result, and the limits you accept without argument.

The four tiers, in this project

Starter

You weigh one plate, price it from real receipts, look up every litres-per-kilogram figure with its source written beside it, and put your questions to one stranger who works with crops.

Practitioner

You choose which meal to measure and defend the choice, cite every borrowed figure to its page, and produce one chart a stranger reads correctly without you explaining the axes.

Researcher

You write the protocol before the first weighing, justify three after-weeks rather than one, and quantify the error your scale, your per-person divisor and globally averaged coefficients introduce.

Contributor

You set your plate figure against a published water-footprint study, defend your method to an agronomist who disagrees, and publish your raw weighings and every source openly so others can recompute it.

The one expert you must talk to

Who. An agronomist, irrigation engineer or agricultural extension officer - somebody who decides how much water a crop actually gets. A rice mill manager or a dairy farm manager works equally well.

Where to find one. Ring the district agriculture extension office listed on the provincial agriculture department site. Agricultural university departments publish staff emails. Search LinkedIn for 'agronomist' plus your city. Failing all three, the manager of a rice mill, a dairy or a vegetable wholesale market will know the water figures for their own crop.

SEND EXACTLY THIS

Hello, my name is [name]. I have weighed one dinner my family ate and worked out the litres of water behind it from published per-kilogram figures. One of my numbers looks wrong to me. Could you spare fifteen minutes on the phone this week to tell me which one? I will send my five questions first.

Ask them

1. For the crop you know best, how many litres of water reach one kilogram at the farm gate, and how do you know that figure?
2. Published water footprints are national averages. How far off would that average be for a field in this district, and in which direction?
3. Which of the ingredients on my plate would you say is the most water-expensive, before I show you my numbers?
4. When a farmer changes one practice, how long before the change shows up in water use, and how is it measured?
5. If a buyer asked you to prove a shipment's water footprint tomorrow, what evidence would you actually send them?

You will be asked, without warning

1. Would this drop in litres have happened anyway without your change, and how do you know?
2. Your litres-per-kilogram figures are averages taken somewhere else. What would the figure be for the field that actually grew your rice, and how would you find that out?
3. You measured three weeks. Convince me three is enough, and tell me what a fourth week would most likely have shown.
4. If the household goes back to the old ingredient next month, what was this project worth, in litres and in rupees?

If you get stuck

- If nobody replies to your interview requests - then stop writing and go to the vegetable wholesale market at opening time and ask one trader two questions while they work.
- If your before and after look the same - then report that as the finding, check first whether the change was actually kept on every one of the twenty-one days, and write what you find in the failure log.
- If you cannot weigh an item - then measure it by level cupfuls, weigh one cupful once on a shop's scale, write that conversion at the top of the page, and mark the row as estimated.
- If you run out of time - then shorten the after-period to two weeks rather than dropping the baseline, and state the shortened period on the chart itself.

Finished early?

Measure the same dish cooked in a second household and set the two plates side by side, item by item, on one chart.

The Sugar You Did Not Order

Seven days of drinks, converted to level teaspoons: the sugar your household never ordered and never saw.

THE QUESTION

How many level teaspoons of sugar does your household drink in one week, and which single drink carries most of them?

Sugar in drinks is a product decision made by manufacturers and tea stalls, and it is measured in grams per hundred millilitres on a label that almost nobody reads. Governments in a growing number of countries now tax or regulate sugar in beverages, and manufacturers reformulate recipes in response, so the work of converting labels into an honest household total is done professionally by dietitians, public-health analysts and product teams. The method here is theirs: a defined population, a fixed observation window, a published composition figure per unit, a stated conversion, and a plain account of what the total leaves out.

ACT 1 - FIND

You count what your household drinks, not what it eats. Every drink taken by every person over seven days is logged by volume, the grams of sugar per hundred millilitres are read off the label where there is one, the sugar spooned in at home is weighed or counted in level teaspoons, and the whole week is converted into one number: level teaspoons of sugar drunk.

A one-page costed problem statement carrying four lines: which household, level teaspoons of sugar drunk in the week, the same figure projected across a year, and the rupees spent on those drinks in the week. Beside it sits a bar chart of teaspoons by drink type, largest bar first, with the source of every sugar figure named and the four-gram conversion stated on the page.

ACT 2 - FIX

You swap exactly one drink - one item, not all of them - agreed in advance with whoever drinks it, and you leave everything else in the household untouched. Seven days later you count the identical seven days the identical way, using the same log, the same labels and the same conversion, so the only moving part is the one swap you named.

A two-bar chart of level teaspoons per household per week, baseline against swap week, with the difference in teaspoons and in rupees, the swapped drink's own before-and-after line shown separately, a named list of confounders, and the household's recorded answer on whether the swap stays.

YOU MEASURE

level teaspoons of sugar drunk by the household in one week

BEFORE

Seven consecutive days of logging every drink taken by every person by volume in millilitres, multiplied by the grams of sugar per hundred millilitres printed on the label or taken from a named open database, plus sugar added at home weighed on a kitchen scale or counted in level teaspoons, all divided by the grams in one level teaspoon to give teaspoons. Taken before anything is swapped.

AFTER

The same seven weekdays logged the same way one week later, by the same people, with the same log sheet, the same label figures and the same teaspoon conversion, reported as a whole-household total with the swapped drink also shown on its own line.

Safety and ethics - not optional

- This project counts what is drunk and nothing else. Nobody is weighed, nobody is measured, no calories are counted, and no remark about anyone's size, shape or appearance goes in the log, the chart, the explainer or the video. There are no diets, no targets and no use of the word should. Say plainly on the front page that this is a study of a product and a habit, never of a person's body.
- Nobody is named anywhere, including members of your own family. Use adult 1, adult 2, person 3 in the log and use the same labels in the write-up, the chart and the defence video. Anybody may refuse to be logged at the start and anybody may withdraw at any point without giving a reason; when they do, their rows stop, the row is marked withdrawn with the date, and nothing already recorded is used against them.
- If anyone being logged looks uncomfortable, goes quiet about it, or says they would rather not, stop logging that person immediately and write it in the failure log as a recorded event with the date. A household total taken from fewer people is a real finding reported with its limits; a total taken from someone who did not want to be counted is not.
- Nobody is denied a drink at any point, in either week. The swap in Act 2 is one drink, agreed in advance with the person who drinks it, and either of you can end it. Weigh dry sugar cold, in a bowl on the scale, and do not prepare extra drinks for the project.

WHAT YOU USE - NO-TECH ROUTE

A large sheet of paper taped by the kettle, ruled into seven day blocks with columns for time, person label, drink, millilitres and spoons

A marked measuring jug, or a one-litre bottle and a pen to mark the household's cups and glasses once

A kitchen scale, or a level teaspoon and the standard four-grams-per-teaspoon figure written on the page as borrowed

The drink bottles, cartons, tins and sachets themselves, kept in a box for the week so the labels can be read at the end

A notebook and a pen for the evidence log, the failure log and the daily completeness note

Squared paper and a ruler for the teaspoons-by-drink chart and the two-bar comparison

A sheet on the kitchen wall, a pen and a level teaspoon produce the identical teaspoon total; the labels are already on the bottles in the house, and the only figures borrowed from outside are for drinks that come with no packet at all.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1

Set the rules 40 MINUTES

Agree who is being logged, on what terms, and rule the empty sheet before a single drink is counted.

- Sit the household down together and read out one sentence: this counts drinks, not people, nobody is weighed and nobody is named.
- Give each person a label - adult 1, adult 2, person 3 - write the labels at the head of the wall sheet, and tell everyone they may stop being logged at any time without saying why.
- Tape a large sheet by the kettle, rule seven dated day blocks down it, and rule five columns across: time, person label, drink, millilitres, spoons added.
- Write the seven dates in now, including the days you expect to be quiet.
- Write across the top of the sheet: this project is about a product and a habit, never about a person's body.

WRITE THIS DOWN

The person labels with no names beside them, the seven dates, the ruled columns, and one line in the notebook recording that everyone agreed and how they were told they could withdraw.

DONE WHEN

The wall sheet carries seven dated day blocks and no data, and every person being logged can say in their own words how they would stop.

Watch out. Starting the log first and asking permission afterwards. Permission collected after the fact is not permission, and a household that feels watched changes what it drinks before you have measured anything.

2

Log seven days 20 MINUTES A DAY FOR SEVEN DAYS**Record every drink taken by every logged person for seven consecutive days, by volume.**

- Hang the pen on a string beside the sheet and mark each drink as it is poured, not at the end of the day from memory.
- Measure the household's usual cup, glass and bottle once with a jug, write the millilitres of each at the top of the sheet, and log by vessel afterwards.
- Log everything with sugar in it or on it: tea, coffee, soft drinks, packaged and fresh juice, flavoured milk, lassi, squash, cordial, energy drinks, sweetened yoghurt drinks and sweetened lemonade.
- Log drinks taken outside the house too, marked with the letter O, and log plain water and unsweetened tea as zero rows so the week is complete.
- Keep every bottle, carton and sachet in a box under the sink for the whole week instead of throwing it away.

WRITE THIS DOWN

One row per drink with time, person label, drink, millilitres and where it was drunk, plus a nightly line on what was missed.

DONE WHEN

Seven consecutive days each carry at least one row, no day is blank, and the box holds the week's empty packets.

Watch out. Reconstructing three days on Sunday evening. Memory undercounts drinks badly, especially tea. Mark at the kettle, and where you did reconstruct, mark those rows as reconstructed rather than pretending.

3

Read the labels 50 MINUTES**Get grams of sugar per hundred millilitres for every packaged drink from the packets in your box.**

- Empty the box onto the table and sort the packets into one pile per drink.
- Copy the sugars figure per hundred millilitres from each nutrition panel into a table in the notebook, one row per drink, with the brand and the pack size beside it.
- Where a panel gives sugar per serving, write the serving size in millilitres and do the conversion longhand in the margin so the working stays visible.
- For any drink with no panel at all, walk to the shop and copy the panel off a full bottle on the shelf, writing the shop and the date beside the figure.
- For fresh juice, plain milk or a home-made yoghurt drink, ask a pharmacist, a dietitian or a college library for a printed composition figure and write its source across the top of the table.

WRITE THIS DOWN

Sugar grams per hundred millilitres for every packaged drink, the source beside each one, and the pack kept or the shop visit recorded for each.

DONE WHEN

Every packaged drink in the log has a sugar figure with a source somebody else could go and check.

Watch out. Copying the per-serving figure into the per-hundred-millilitres column. A serving is often more than a hundred millilitres and sometimes far less; do the conversion on the page rather than in your head.

4

Weigh the spoons 45 MINUTES**Measure the sugar added at home, which no label will ever tell you.**

- Put a small bowl on a kitchen scale, zero it, add ten level teaspoons counted out loud, weigh the total, divide by ten longhand, and write the grams in one level teaspoon at the top of the sheet.
- Where there is no scale at home, weigh the ten spoons once on a shop's scale, or use four grams and write on the page that this is a standard figure you did not measure yourself.
- Watch the tea being made for three days and count the level teaspoons that go in, asking whoever makes it to spoon as normally as they can while you count.
- Where sugar goes into a shared pot, count the spoons into the pot, count the cups poured out of it, and write the division out longhand.
- Level every spoon against the rim with a knife before counting it, and say so on the page.

WRITE THIS DOWN

Grams in one level teaspoon as measured by you, the spoons added per cup for each home-made drink, the pot divisor where one applies, and a mark against anything estimated rather than counted.

DONE WHEN

Every home-made drink row carries a spoons-added figure, and the grams-per-teaspoon figure is either your own measurement or openly marked as borrowed.

Watch out. Counting heaped spoons as level ones. A heaped spoon can hold close to twice a level one. Level them against the rim, or weigh a heaped spoon once and use that weight instead.

5

Convert to teaspoons 60 MINUTES**Turn the whole week into one number anybody understands: level teaspoons of sugar drunk.**

- For each packaged drink row, multiply millilitres by grams per hundred millilitres and divide by a hundred, longhand in the margin, to get grams of sugar.
- For home-added sugar, multiply spoons by the grams in one level teaspoon, and add both figures where a drink carries label sugar and spooned sugar.
- Divide every grams figure by the grams in one level teaspoon to get teaspoons, and add the column up twice, once from the top and once from the bottom, to check it.
- Rule three summary tables at the foot of the sheet: teaspoons for the week, teaspoons by drink type, and teaspoons by person label.
- Draw the teaspoons-by-drink bar chart on squared paper, largest bar first, with the scale stated and the finding as the title.

WRITE THIS DOWN

Teaspoons per row, the week's household total added twice, the breakdown by drink type and person label, and the chart.

DONE WHEN

You can say the household's weekly teaspoon total out loud without looking, and name the single drink carrying the biggest share of it.

Watch out. Reporting one enormous grams figure. Grams mean nothing at the dinner table and teaspoons mean everything. Convert, and write the conversion you used beside the number.

6 Name the cost 50 MINUTES

Finish the costed problem statement on one page and choose the single drink you will swap.

- Write four lines: which household and how many people, level teaspoons drunk this week, the same figure multiplied out across a year, and the rupees the week's drinks cost from receipts or shop prices.
- Copy the teaspoons-by-drink chart onto the same page with the grams-per-teaspoon conversion printed under it.
- List three possible swaps with the teaspoons each would save: replace one packaged drink with water or unsweetened tea, halve the spoons in one home-made drink, or change one bottle size.
- Choose one, and only one, and write: 'For one week we will swap X for Y and expect the household total to fall from A teaspoons to B.'
- Read the page aloud to the person who actually drinks that drink and have them sign and date it if they agree, or record their refusal and choose another swap.

WRITE THIS DOWN

The one-page costed problem statement, the three candidate swaps with predicted savings, the chosen swap as one testable sentence, and the signed dated agreement.

DONE WHEN

Somebody who was not there reads the page once and repeats the teaspoon number back correctly, and the person whose drink changes has agreed on the record.

Watch out. Swapping everything at once because the total looks bad. Swap one drink. Change five and you will never know which one moved the number, and the household will abandon all five by Wednesday.

7 Agree the protocol 40 MINUTES

Write down what must stay identical in the second week so the two weeks can be compared at all.

- Write what is fixed: same seven weekdays, same people and labels, same cups and vessels, same ruled sheet, same label figures, same grams per teaspoon.
- Write what is allowed to move: only the one drink named in step six.
- Rule and date a fresh wall sheet for the swap week before any data exists, and tell everyone which day it starts.
- Buy or prepare the replacement drink before day one, so nobody is stuck without a choice at the moment of habit.
- Write your prediction at the foot of the page, date it, and have one person witness it with a signature.

WRITE THIS DOWN

The protocol as a numbered list, the seven swap-week dates, and the witnessed dated prediction.

DONE WHEN

A blank ruled sheet for seven days hangs by the kettle and a signed prediction exists that plainly predates the data.

Watch out. Running the swap week in a week that is not normal - a holiday, a wedding, guests, exams. Pick an ordinary week, and if the week turns out not to be ordinary, write that down rather than hiding it.

8

Run the swap 20 MINUTES A DAY FOR SEVEN DAYS**Log the swap week exactly as you logged the baseline week, changing nothing else.**

- Mark every drink at the kettle again, in the same columns, with the same person labels.
- Give the replacement drink its own row with its own label figure or spoon count, rather than writing a zero and moving on.
- Write the swapped drink as zero on the days it did not happen, and write it honestly on any day it came back.
- Write one line each evening on how the swap held: kept, partly kept, or abandoned, and why.
- If anyone asks to stop being logged, stop that person's rows the same minute, mark them withdrawn with the date, and carry on with the rest.

WRITE THIS DOWN

Seven complete swap-week days, the daily kept-or-broken line, and any withdrawal recorded with its date.

DONE WHEN

The swap week carries every column the baseline week had, and the failure log holds at least one honest entry about a day the swap slipped or a drink went unrecorded.

Watch out. Quietly not marking the day the old drink came back. That day is the most informative day in the fortnight. Log it, and write what happened just before it.

9

Compare the weeks 60 MINUTES**Set the two weeks side by side and report the difference honestly, including if there is none.**

- Total the swap week in teaspoons the same way, adding the column twice, and write the two totals side by side.
- Draw the two bars on squared paper to one stated scale starting at zero, baseline against swap week, in level teaspoons per household per week.
- Draw the swapped drink on its own small chart, so a reader can see whether the swap worked and the total still did not move.
- List every confounder by name: a guest, a hot week, a fast, an illness, a person withdrawing, a price change, somebody drinking more of something else instead.
- Write the change as teaspoons and as a percentage, and add one plain sentence on whether one week either side is enough to be sure.

WRITE THIS DOWN

The two-bar chart, the swapped-drink chart, the difference in teaspoons and in rupees, and the named confounder list.

DONE WHEN

You can state the before number, the after number, and at least two reasons the difference might not be your doing.

Watch out. Explaining away a week that went the wrong way. Report it. A well-measured failure outscores an unmeasured success, and substitution - more of something else - is the finding a dietitian will most want to hear.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record what the household will keep.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone with no person in shot.
- Read the one-page explainer to three people who drink these drinks and write down what each of them said.
- Hand or post the two-bar chart to the expert you interviewed with one question: what would you have counted that I did not.
- Ask the household, without prompting them, whether the swap stays, and write the answer down word for word using labels rather than names.
- Complete the relations ledger with ten names, roles, dates and what each person replied.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, no person is named in anything shared, and the household has said on record whether the swap stays.

Watch out. Ending with advice about what people should drink. You measured a product and a habit for two weeks. Report the number, report the limits, and let the household decide.

Your nine deliverables in this project

1 - RESEARCH - WEEK 2

Question card

One card naming the household size, the seven dates and the person labels, and the question: how many level teaspoons of sugar does this household drink in a week, and which drink carries most.

3 - RESEARCH - WEEK 4

Evidence log

Every drink row with date, time, person label and millilitres, every sugar figure with the label photograph or database page behind it, your measured grams per level teaspoon, and every spoon count with its date.

5 - DESIGN - WEEK 5

The build

The logging system itself - the wall sheet or spreadsheet, the marked cups, the weighed teaspoon - together with the two-bar comparison chart of teaspoons per household per week, baseline against swap week.

7 - BRANDING - WEEK 5

Identity card

A name and a one-line promise for the measurement so the household can refer to it by name, plus the single sentence you want repeated at somebody else's table, carrying the number and no judgement.

9 - DEFENCE - WEEK 6

Defence video

Under three minutes on camera with no person in shot and no name spoken: the teaspoon total, the source of every sugar figure, the one swap, the result, and the limits you accept without argument.

2 - OUTREACH - WEEK 3

Expert interview pack

Five questions for a dietitian, school nurse, pharmacist or beverage-shop owner, your weekly teaspoon total attached as one page with no names, the date and channel of the request, and the reply word for word.

4 - PROCESS - WEEK 5

Failure log

The drinks logged from memory, the days the swap broke and why, anyone who withdrew and when, the label you could not read, and what each of them did to the comparison, all dated.

6 - DESIGN - WEEK 5

One-page explainer

One page a neighbour reads in ninety seconds: the teaspoon total, the drink that carried most, the one swap, the second week's total, and what this figure cannot tell anybody about anybody's health.

8 - OUTREACH - WEEK 6

Relations ledger

Ten names with dates and replies: one dietitian, nurse, pharmacist or shopkeeper, three people affected by the drinks bill, three peers who checked your arithmetic, and three people you sent the chart to who answered.

The four tiers, in this project

Starter

You log seven days without missing a drink, read the sugar figure off at least five labels, weigh one level teaspoon, produce a weekly teaspoon total, and question one stranger who works with food.

Researcher

You write the log protocol before day one, justify a seven-day window rather than three days, and quantify the error introduced by unlabelled drinks, shared pots and drinks taken outside the house.

Practitioner

You decide which drinks count and defend the boundary, cite every sugar figure to the label or database page it came from, and produce one chart a stranger reads correctly without you explaining the axes.

Contributor

You set your household figure against a published survey of beverage sugar intake, defend your method to a dietitian who disagrees, and publish the anonymised daily log openly so anybody can recompute your total.

The one expert you must talk to

Who. A dietitian or nutritionist in a hospital or clinic, a school nurse, a community pharmacist, or the owner of a busy tea stall, juice bar or beverage shop who knows exactly how much sugar goes into a day's takings.

Where to find one. Walk into a pharmacy at a quiet hour and ask whether the pharmacist has fifteen minutes later in the week. Hospitals and clinics list a dietetics or nutrition department on their website with a reception number. Search LinkedIn for 'dietitian' or 'nutritionist' plus your city. For the trade side, the tea stall or juice bar nearest your house buys sugar by the sack and will tell you how much a week if you ask while they are not busy.

SEND EXACTLY THIS

Hello, my name is [name]. I logged every drink my household took for seven days and converted the labels into teaspoons of sugar. The weekly total surprised us and I think I have counted something wrong. Could you spare fifteen minutes this week to tell me which part? I will send five questions first.

Ask them

1. When you count sugar from drinks, what do you count and what do you deliberately leave out?
2. How far off is a household's own seven-day log likely to be, and does it usually undercount or overcount?
3. Which drink in a normal week do people most often forget to mention to you, and why that one?
4. When somebody changes one drink, what usually happens to the rest of what they drink, and how would I detect that in my log?
5. If you had my seven days of data, what one extra column would you have asked me to record?

You will be asked, without warning

1. Would the second week's total have fallen anyway without your swap, and how do you know?
2. Your figures come from labels and from spoons you counted. Which of the two do you trust less, and what would it take to check it?
3. Somebody in the household drank more of something else during the swap week. Show me where in your data you would see that, or explain why you could not.
4. You logged seven days. Convince me seven is enough, and tell me what an eighth week of the year would most likely have looked like.

If you get stuck

- If nobody replies to your interview requests - then stop writing and walk to the busiest tea stall or juice bar near you at a quiet hour and ask the owner two questions while they work.
- If your baseline and swap weeks look the same - then report that as the finding, check the daily kept-or-broken lines to see whether the swap was actually held on all seven days, and look for a drink that grew while the swapped one shrank.
- If a drink has no label and no database entry - then measure it directly: count the spoons that went into the pot, count the cups poured out, divide, and mark the row as measured rather than sourced.
- If you run out of time - then keep both weeks at seven days and cut the number of drinks you cover rather than the number of days, and state on the chart exactly which drinks were excluded and why.

Finished early?

Log a second household of a different size for the same seven days and put the two weekly totals side by side per person, still using labels and no names.

The Prayer-Time Error

Time the sunset from your own doorstep for fourteen evenings and find how many minutes your timetable is out.

THE QUESTION

How many minutes does the printed or app timetable differ from the event you actually see from one fixed spot, and where does that difference come from?

A published time is the output of a model, and the moment you see is an observation; the gap between the two is exactly what positional astronomy exists to account for. Surveyors, satellite operators, flight planners and anybody who publishes an almanac are paid to know the size of that gap, its causes and its limits. The method here is theirs: fix a station, synchronise a clock, observe repeatedly, and report the residual with its spread instead of one confident number.

ACT 1 - FIND

You stand on one marked spot for fourteen evenings and record, to the minute against a clock synchronised to network time, the moment the sun leaves your horizon. You set that observation against what the wall calendar says, what the app says, and what an astronomical computation says for your exact coordinates.

A one-page costed problem statement carrying four lines: whose problem this is, the mean signed difference in minutes at this spot, the worst evening in the fortnight, and the total minutes of mistiming per year across everyone who uses that same table here. Beside it sits a chart of the signed difference against date with a line at zero, the source and stated location of every published time, and one line stating that this is an observation of visibility from one spot and not a religious ruling.

ACT 2 - FIX

You publish a corrected table for that one spot, built by applying your measured offset to the computed times, with its evidence and its limits printed on the same page. You then put it in the hands of at least five people, observe fourteen more evenings against it, and count use in user-days recorded by the users themselves.

The residual difference in minutes between the corrected table and fourteen fresh observations, the adoption count in user-days backed by tick sheets or message threads rather than memory, and every user's answer to the same two questions written word for word, including the answers of those who stopped.

YOU MEASURE

minutes between the published time and the event observed from one fixed spot

BEFORE

Fourteen consecutive evenings observed from one chalk-marked spot at one marked eye height, each read to the minute from a clock checked against network time, subtracted from the printed calendar time, the app time and the computed time for the same date. Reported as a mean with its largest and smallest value, cloudy evenings marked unusable rather than filled in.

AFTER

Fourteen further evenings observed from the identical spot, at the identical eye height, with the identical clock check, subtracted from the corrected table you published. Reported the same way, alongside the count of user-days recorded by the five or more people using the table.

Safety and ethics - not optional

- Never look at the sun. Not with the naked eye, not through a phone or camera screen, not through glasses, sunglasses, binoculars, a telescope or any lens. Keep your eyes on the wall top, the ridge or the horizon edge and note the moment the light leaves that edge.
- Observe from a window, a courtyard or a roof that has a wall or a railing. An adult in the household knows which spot you stand on and at what time. Never observe alone from an unlit street, an open plot or an unfenced roof edge.
- This project measures visibility from one spot. It is not a religious ruling. Write on every page you publish that this is an observation and not a verdict, and that questions of religious practice belong to a qualified scholar.
- Take nothing to the observation spot that you would not want to drop: no glass, no borrowed phone held over a parapet, no chair dragged to the edge to see further. If the view needs a climb, choose a different spot.

WHAT YOU USE - NO-TECH ROUTE

One fixed observation spot, marked with chalk on the floor, with a card taped at eye height on the frame beside it

A watch or clock with a second hand, set from a known-accurate clock and re-checked against it every third evening

The wall calendar or printed timetable, kept undamaged, plus a newspaper carrying the same daily times as a second published source

A notebook ruled into seven columns: date, calendar time, second source, observed time, difference, sky, notes

Squared paper, a ruler and a pencil for the fourteen-day difference chart drawn to a stated scale

A sheet of paper pinned where people pass, carrying the corrected table copied out by hand

A chalk mark, a watch set from a known-accurate clock and a ruled notebook produce the same minutes figure; the published times come from the calendar on the wall and a newspaper, and each source is written down with the place it was computed for.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Fix the spot 45 MINUTES

Choose one spot you can stand on every evening for a month and fix it so it never moves.

- Stand where you can see the western skyline from a window, a courtyard or a walled roof, and check an adult in the household can see or hear you there.
- Mark the standing position with chalk and tape a card at your eye height on the frame beside you, so height as well as position is fixed.
- Draw the western skyline on the first page of the notebook and mark on it the wall top, ridge or roof line the sun goes behind.
- Pace out and write down where the spot sits: which room, which side of the building, how many steps from a named door.
- Write one line on what blocks the true horizon and roughly how high it stands above your eye height.

WRITE THIS DOWN

The description of the spot, the eye-height mark, the paced position, and the drawing of the skyline with the blocking edge marked.

DONE WHEN

Another person can find the chalk mark from your written description alone and see the skyline you drew.

Watch out. Stepping half a metre aside because the view is better. A different standing point puts a different edge in the way and moves the moment of disappearance; mark the spot and keep it.

2 Prove the clock 30 MINUTES

Set your watch from a clock known to be accurate and record how far it drifts.

- Find a clock known to be accurate - one set from a network, a radio time signal, a station clock or a television news clock - and name it in the notebook.
- Set the watch against it to the second, and write the date, the time and the clock you used.
- Re-check the watch against that same clock every third evening and write the drift in seconds each time, including the zeros.
- Agree the rules aloud with an adult in the household: which spot, which time, and that you never look at the sun or through any lens.

WRITE THIS DOWN

The reference clock named, the setting time and date, and the drift in seconds at every third-evening check.

DONE WHEN

The notebook holds at least five dated drift readings and the watch has never been more than a minute from the reference.

Watch out. Setting the watch once and trusting it for a month. Write the drift down; a watch that slips two minutes turns a real finding into a wrong one.

3

Read the tables 50 MINUTES**Copy out what the calendar and a second published source state for your fourteen dates.**

- Copy the wall calendar or printed timetable times for the next fourteen dates into the first column, exactly as printed.
- Find a second published source - a newspaper's daily times, a mosque notice, a second printed calendar - and copy its times for the same dates.
- Write down which city, zone or point each source says it was computed for; where it does not say, write 'not stated'.
- Write where each source came from and on what date you copied it, so the copy can be traced back.
- Rule the remaining columns for observed time, difference in minutes, sky condition and notes.

WRITE THIS DOWN

Fourteen dated rows carrying two published times each, with the name, source and stated location beside every one.

DONE WHEN

All fourteen dates carry two published times and both sources are named on the page with the date they were copied.

Watch out. Copying only one source because the second is hard to find. The gap between two published tables is a finding on its own, and it costs one walk to get it.

4

Watch fourteen evenings 20 MINUTES EACH EVENING FOR FOURTEEN EVENINGS**Observe the actual moment from the fixed spot for fourteen evenings and record it to the minute.**

- Stand on the chalk mark ten minutes early, with an adult in the household knowing you are there.
- Keep your eyes on the wall top, ridge or horizon edge and never on the disc itself, and use no glasses, binoculars, camera or lens of any kind.
- Note the minute the last light leaves that edge, reading the watch you set in step two.
- Write the reading in the notebook while still standing on the mark, before you move.
- Record the sky in three words, and mark any evening you could not see the edge as unusable rather than guessing.

WRITE THIS DOWN

Fourteen dated observed times to the minute, the sky condition for each, and a clear mark against every evening lost to weather.

DONE WHEN

At least ten usable evenings carry an observed time, and every unusable evening is written down as unusable rather than left blank.

Watch out. Filling in a cloudy evening from the calendar so the row looks complete. A missing observation is data; an invented one destroys the whole table.

5

Work out the error 55 MINUTES**Calculate the signed difference in minutes against both published sources and describe how it behaves.**

- Subtract the calendar time from the observed time for every usable date, longhand in the margin, keeping the sign so early and late stay apart.
- Repeat against the second published source, filling the second difference column on the same rows.
- Add the differences and divide by the number of usable evenings, longhand, then underline the largest and the smallest.
- Draw the fortnight on squared paper: difference in minutes up the side, date along the bottom, a ruled line at zero, and the scale stated.
- Write one plain paragraph on why an error exists at all: the table is computed for a city centre or a broad zone, while you stand at your own longitude, your own altitude and behind your own wall, and a wall or a hill changes the moment the sun disappears from where you are standing.

WRITE THIS DOWN

Two columns of signed differences, the mean and the range for each source, the drawn chart, and the paragraph explaining the cause.

DONE WHEN

You can state the mean difference in minutes for your spot and say whether it holds steady across the fortnight or drifts.

Watch out. Dropping the signs and averaging the sizes. Three minutes early and three minutes late average to zero, not to three, and the direction is the whole finding.

Act 2 – fix it and measure steps 6 to 10, ending with a proven effect

6

Name the cost 50 MINUTES**Finish the costed problem statement and commit to publishing a corrected table for this one spot.**

- Write four lines: whose problem this is, the mean difference in minutes at this spot, the worst evening of the fortnight, and the minutes of mistiming per person per year at that mean.
- Count the people who use the same table at or near this spot and multiply longhand to get the yearly total minutes across all of them.
- Write one line without hedging: this measures visibility from one spot, it is an observation and not a verdict, and questions of religious practice belong to a qualified scholar.
- Choose the fix and write it as one sentence: 'I will publish a corrected table for this spot and get at least five people to use it for fourteen days.'
- Read the page aloud to an adult in the household and write their reaction down in their own words.

WRITE THIS DOWN

The one-page costed problem statement, the count of people affected, the sentence about the scholar, and the fix as one testable sentence.

DONE WHEN

Somebody who was not there reads the page once and repeats both your minutes figure and the sentence about the scholar back correctly.

Watch out. Writing the page as a claim about what is correct to do. The page reports what was seen from one spot on fourteen evenings; that is the only claim it can carry.

7

Build the table 60 MINUTES

Write out a corrected thirty-day table by hand, with its evidence and its limits printed on it.

- Copy the printed source's times for the next thirty dates into a fresh ruled page, one date per line.
- Add your measured mean offset to each line longhand, and write both the original and the corrected time so the arithmetic stays visible.
- Write a header block: the exact spot, how to find it, the dates observed, the mean offset, the range and the number of usable evenings behind it.
- Write a footer block: the horizon this table assumes, the plain statement that it does not hold for anyone standing elsewhere, and the sentence that this is an observation and not a ruling.
- Give it to one person who was not involved, ask them what it means, and correct anything they misread.

WRITE THIS DOWN

The thirty-line corrected table with both times per row, its header block, its footer block, and a note of what the first reader misunderstood.

DONE WHEN

The table fits on one page, states its offset and its evidence, and a stranger can say what it is for and what it is not for.

Watch out. Publishing a rounded offset with no range beside it. Write the mean and the spread together, so a reader knows how tightly to trust it.

8

Find five users 45 MINUTES

Put the corrected table in the hands of at least five people and agree how their use will be recorded.

- Copy the table out five times by hand or at a print shop, and give one to each of five people who stand at or near your spot.
- Explain the one number and its limits in under a minute to each of them, and ask directly whether they will use it for fourteen days.
- Write the answer down, including every refusal, and agree how use gets recorded: a tick sheet pinned beside the table, or one question you ask at a fixed time.
- Write the user ledger: name, role, date given, recording method, and their first reaction word for word.
- Write your expected adoption on a page, date it, and have one person sign as witness before the fortnight starts.

WRITE THIS DOWN

The user ledger with five or more names, the recording method agreed with each, and the witnessed dated prediction.

DONE WHEN

Five people hold a copy and each has told you on the record whether they intend to use it.

Watch out. Handing out ten copies and calling it ten users. A copy given is not a use; the count rises only when somebody records using it.

9

Measure the fortnight 20 MINUTES EACH EVENING FOR FOURTEEN EVENINGS, PLUS 45 MINUTES**Observe fourteen more evenings against the corrected table and count who actually used it.**

- Observe from the same chalk mark at the same eye height under the same safety rules, recording the observed minute exactly as before.
- Subtract the corrected table time from the observed time each evening, longhand, to get the residual error in minutes.
- Collect every user's tick sheet on the agreed day and count days ticked, not copies handed out.
- Ask every user the same two questions and write the answers word for word: did it change what you did, and will you keep using it.
- Write down every reason a user stopped: forgot, did not trust it, moved away, disagreed with the idea.

WRITE THIS DOWN

Fourteen residual differences, the adoption count in user-days, and every user's recorded answers including those who stopped.

DONE WHEN

You can state the residual error in minutes and the number of user-days, and both rest on records other people made.

Watch out. Counting a user who says they used it with nothing written down. Ask for the tick sheet; memory inflates adoption every time.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record what happens to the table now.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Read the one-page explainer to three people who use the table and write down what each of them said.
- Hand or send the drawn chart to the expert you interviewed with one question: what would you have measured that I did not.
- Ask the users in front of a witness whether the table stays on the wall and why, and write the answers word for word.
- Complete the relations ledger with ten names, roles, dates and what each person replied.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, and the users have said on record whether they keep the table.

Watch out. Ending on how useful people said it was. The metric is minutes and user-days - report those first and opinions second.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card naming the exact spot, its coordinates or paced description, the tables being tested, and the question: how many minutes out is this table for this doorstep, and why.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for an astronomer, surveyor or almanac compiler, your fourteen-day difference chart attached, the date and channel of the request, and the reply recorded word for word.

3 - RESEARCH - WEEK 4**Evidence log**

Every observed time with its date and sky condition, every clock check with its offset in seconds, and every published time with the source and the location it was computed for.

4 - PROCESS - WEEK 5**Failure log**

The evenings lost to cloud, the night you arrived late, the watch that drifted, the user who stopped ticking the sheet, and what each of them did to the comparison, all dated.

5 - DESIGN - WEEK 5

The build

The corrected one-page table itself, with its header of evidence and its footer of limits, together with the two charts of signed difference: the fortnight before and the fortnight after.

7 - BRANDING - WEEK 5

Identity card

A name and a one-line promise for the corrected table, so people can refer to it by name, plus the single sentence you want repeated at somebody else's table.

9 - DEFENCE - WEEK 6

Defence video

Under three minutes on camera: the spot, the clock evidence, the mean error, the corrected table, the residual, the user-days, and the limits you accept without argument.

6 - DESIGN - WEEK 5

One-page explainer

One page a neighbour reads in ninety seconds: the spot, the mean minutes, why a table computed for a zone misses a doorstep, the corrected table, and the line about the scholar.

8 - OUTREACH - WEEK 6

Relations ledger

Ten names with dates and replies: one astronomer or surveyor, three people who use the table, three peers who checked your arithmetic, and three people you sent the chart to who answered.

The four tiers, in this project

Starter

You observe from one marked spot on at least ten usable evenings, record each time to the minute against a checked clock, and put your questions to one stranger who works with time or sky.

Practitioner

You choose the observation spot and defend the choice, cite the source and the stated location of every published time you compare against, and make one chart a stranger reads correctly without your help.

Researcher

You write the protocol before the first evening, justify fourteen nights rather than three, and quantify in seconds the error added by your eye, your clock and your blocked horizon separately.

Contributor

You set your measured offset against a published ephemeris or an observatory figure, defend your method to an astronomer who disagrees, and publish every raw observation openly so others can recompute it.

The one expert you must talk to

Who. An observational astronomer, a physics or astronomy lecturer, a land surveyor who works in coordinates, or whoever computes the times a local calendar prints. A member of an amateur astronomy society who does timing work is just as good.

Where to find one. University physics and astronomy departments publish staff emails on their pages. Amateur astronomy societies run public observing nights and welcome questions. The meteorological department has a public enquiries line. A land surveyor at the municipal or revenue office works in coordinates every day and will explain longitude faster than anybody.

SEND EXACTLY THIS

Hello, my name is [name]. I have timed sunset from one fixed spot for fourteen evenings against a network-synchronised clock, and my observations sit several minutes off the printed table. Could you spare fifteen minutes on the phone this week to tell me where that difference comes from? I will send my five questions first.

Ask them

1. When a sunset time is published for a city, which point in that city is it computed for, and what horizon does the computation assume?
2. How many minutes can a wall, a ridge or a block of flats on the western skyline move the observed moment away from the computed one?
3. How far apart do two spots have to be, east to west, before their sunset times differ by a full minute at this latitude?
4. When you time an event by eye, what exactly do you take as the moment, and how closely do two observers usually agree?
5. If I published a corrected table for one spot, what would you insist appeared on the page before anybody used it?

You will be asked, without warning

1. Would those five people have changed their timing anyway without your table, and how do you know?
2. Your horizon is blocked by a wall. How much of your offset is longitude and altitude, how much is that wall, and how would you separate the two?
3. You lost evenings to cloud. Convince me the mean you published is stable, and tell me what a second fortnight would most likely have shown.
4. Somebody carries your table two streets away and uses it. What error have you handed them, and what did you print on the page to prevent it?

If you get stuck

- If nobody replies to your interview requests - then stop writing and go to a public observing night, a survey office counter or a physics department corridor, and ask one person two questions while they work.
- If your before and after look the same - then report that as the finding, check first whether the five users actually used the table on each of the fourteen evenings, and write what you find in the failure log.
- If you cannot see the horizon on most evenings - then choose a fixed edge you can always see, a roof line or a wall top, define and photograph that edge, and report every time against it instead.
- If you run out of time - then shorten the second fortnight to seven evenings rather than dropping the first, and print the shortened period on the chart itself.

Finished early?

Repeat the fortnight from a second spot two hundred metres away with a different skyline, and chart the two offsets on one axis.

The Thing That Keeps Breaking

Count what one latch, strap or bracket costs your household a year in rupees and lost hours.

THE QUESTION

Which small object in your house, shop or classroom fails most often, what does each failure cost in rupees and minutes, and does one reinforcement stop it failing?

Every factory, fleet, hospital and building runs on somebody counting how often a part fails and what each failure costs, and that counting has a name in industry: reliability and maintenance engineering. Manufacturers pay for failure data because a warranty claim, a stopped line or a callout costs many times what the part cost. The method here is the industry method at household scale: define one use, count the failures, find where the load concentrates, change one thing, and count again under identical conditions.

ACT 1 - FIND

You find the object that actually fails most - a gate latch, a bag strap, a shelf bracket, a tap washer, a door handle, a drawer runner, a broom head, a chair joint - and you build the case from evidence rather than memory: three people asked how often it fails, the physical repair scars photographed and counted, and the failure produced on purpose in a controlled test you can repeat. Then you cost it: what a repair costs, what a replacement costs, how many minutes each failure eats, and how often it happens, which together give rupees and hours per year.

A one-page costed problem statement carrying five lines: whose problem this is, failures per hundred uses in the controlled test, failures per fortnight in ordinary use, rupees per year and hours per year. Beside it sit a photograph of the failure point, an annotated drawing showing where the load concentrates, and the arithmetic behind every rupee figure with its source.

ACT 2 - FIX

You change one thing about the object using only what is already in the house or the shop - a second fixing, a packing plate under a bracket, a stop that limits travel, a doubled strap, a washer at the wear point - and you fit it. Then you run the identical hundred-use test and log the identical fortnight of ordinary use, with the same tester, the same load and the same definition of one use.

A four-bar chart on one axis: failures per hundred uses before and after, failures per fortnight before and after, plus the new rupees and hours per year, a named list of confounders, and a photograph of the fitted change taken from the same standing position as the before photograph.

YOU MEASURE

failures of one object per hundred identical uses, and failures per fortnight in ordinary use

BEFORE

Two counts taken before anything is changed: failures in a controlled test of one hundred identical uses, tallied by hand and filmed, with the load and the definition of one use written down first; and failures logged on a tally card in ordinary use across fourteen days, each with the date, the user, the minutes lost and the rupees spent.

AFTER

The identical hundred-use test on the changed object, run by the same person in the same place with the same load and the same speed, plus fourteen more days of ordinary-use logging on a fresh tally card in the same place, using the same definition of a failure.

Safety and ethics - not optional

- Nothing electrical and nothing gas. A plug top, a switch plate or an extension lead is examined only with it unplugged from the wall and the cover left screwed shut; nothing is opened, stripped, rewired or plugged in to test, and nothing attached to a gas pipe, cylinder, regulator or burner is part of this project.
- Feet on the floor. No ladders, no stools, no climbing, no roof and no work above your own standing reach; if the object sits out of reach, an adult brings it down or you choose a different object.
- Test loads fall onto empty floor and nothing else. Load with weight you can hold in one hand - filled bottles, a bag of rice, a bucket half full - hung or placed so that if it drops it lands on bare floor, never over a foot, a hand, a lap, a pet or a phone; stand to one side, and for anything under tension, spring, elastic or wire, wear eye protection or keep your face turned away.
- Out of scope: anything structural or anything holding a person off the ground - a stair tread, a balcony rail, a ladder rung, a swing, a bed frame, a roof or wall fixing. A loose chair joint may be measured and reinforced only with the chair empty on the floor and loaded by hand with weight; no person is ever the test load. No power tools unless an adult is holding the work, and no cutting, drilling or heating on your own.

WHAT YOU USE - NO-TECH ROUTE

A notebook ruled into columns with a pen and a ruler: object, times per month, minutes lost, rupees, tally

A tape measure or a ruler for the dimensions at the failure point, and a card taped beside the object for the fourteen-day tally

A known test load already in the house - a one-litre bottle of water weighs one kilogram, a sealed bag of rice is marked with its weight

Squared paper for the load-path drawing, the redesign drawn to a stated scale, and the four before-and-after bars

Repair material already in the house: string, wire, a spare screw, a washer, an offcut of wood, glue, tape, a strip of old rubber

The household's receipts, or a card carrying prices copied at the hardware shop counter

A tape measure, a tally card and squared paper produce the same failure rate; the counting is done by hand, the drawing is done with a ruler, and the witnesses sign what they saw.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Find the thing 45 MINUTES

Walk your house, shop or classroom and list every object that has failed more than once, then choose one.

- Walk one lap of each room with the notebook open and write down every object that has been repaired, tied, taped, glued, wired or propped.
- Ask three people who use these things daily how often each one fails, and write their answers as times per month, never as the word 'often'.
- Sketch each candidate on its own line, marking the joint or the point that gives.
- Rule three columns beside the list: times per month, minutes lost per failure, and safe to test yes or no, against electrical, gas, structural or above your reach.
- Choose the highest-scoring object that passes the safety column and write one sentence saying why you chose it over the runner-up.

WRITE THIS DOWN

The ruled candidate table with three people's frequency answers, the safety column, the chosen object and the written reason.

DONE WHEN

One object is named, sketched and defended in writing against at least four rejected candidates.

Watch out. Choosing the object that annoys you most rather than the one that fails most. Let the table decide; if the annoying one wins on numbers, keep it, but it has to win.

2

Read the scars 40 MINUTES

Collect physical evidence that this object has failed before, instead of trusting anybody's memory.

- Draw the object large on one page and mark every repair on the drawing: old glue, a second screw hole, wire, tape, a replaced part, a worn groove.
- Count the separate repair marks and write the count down, because each mark is a past failure somebody already paid for.
- Ask the three users when each repair happened and write the nearest month against each mark on the drawing.
- Ask whoever fixed it last what they used and what it cost, and note whether the receipt or leftover material still exists.
- Measure the object with a tape and write the dimensions on the drawing: thickness at the failure point, length of the arm, diameter of the fixing.

WRITE THIS DOWN

The annotated drawing with dimensions in millimetres, and a dated repair history with one line per mark.

DONE WHEN

Your count of past failures comes from marks you drew and people you asked, not from one person's recollection.

Watch out. Accepting 'it breaks all the time' as data. Convert every statement into a count and a month, and write down who said it.

3

Count it failing 60 MINUTES, THEN A TALLY KEPT FOR FOURTEEN DAYS

Produce the failure on purpose in a controlled test, and start a fourteen-day log of failures in ordinary use.

- Write down the definition of one use - one full open and close, one lift with the bag loaded to its usual weight, one turn of the handle - and keep that definition for the rest of the project.
- Run one hundred of those identical uses at a steady, ordinary speed with the same load, and have a second person mark a tally every time it slips, jams, loosens, tears or comes apart.
- Use a known load you can hold in one hand, such as filled bottles counted as one kilogram each, placed so it can only fall onto bare floor, with feet and hands clear and your face turned away.
- Draw the exact point that gives, large, immediately after the test, and have your counter sign and date the tally sheet.
- Tape a tally card beside the object and begin a fourteen-day count of failures in ordinary use, one line per failure with date, time and who was using it.

WRITE THIS DOWN

The written definition of one use, the load in kilograms, the failures-per-hundred-uses figure, and the signed tally sheet.

DONE WHEN

A failures-per-hundred-uses number exists, the fourteen-day log has begun, and a stranger could repeat your test from your written definition alone.

Watch out. Cycling it faster and harder than real use to force a failure. A test that does not look like ordinary use tells you nothing about ordinary use, so match the speed and the load and write both down.

4

Cost one failure 50 MINUTES**Work out what a single failure costs and turn it into rupees and hours per year.**

- Walk to the hardware shop and copy the price of the material, the part and the tradesman's callout charge onto a card with the shop name.
- Ask at two shops what a full replacement of the object costs and write both prices down.
- Sit with the people involved and time the last failure end to end: minutes to notice, to find tools, to fix, to walk to the shop, and the minutes the thing was unusable.
- Do the arithmetic longhand in the margin: failures per year times rupees per failure, and failures per year times minutes per failure divided by sixty.
- Repeat the arithmetic twice, once with the users' failure rate and once with the rate your own tally implies, and leave both on the page.

WRITE THIS DOWN

Rupees per failure, minutes per failure, failures per year from two sources, and rupees and hours per year with the longhand working left visible.

DONE WHEN

Two independent rupees-per-year figures sit on the page and you can say which is the more conservative and why.

Watch out. Counting only the part you bought. The trip to the shop, the waiting and the thing being unusable are usually larger than the part, so count the minutes.

5

Find the weak point 50 MINUTES**Work out where the load concentrates and why the same point gives every time.**

- Draw the object large on squared paper and draw arrows along the path the force takes, from where the hand or the weight pushes to where the object is held.
- Mark three places on the drawing: the narrowest section, the sharpest corner, and the single fixing carrying most of the load, because failures start at those three.
- Write plainly whether the material gave or the joint gave, since a fixing working loose is a different problem from a bar bending.
- Compare with the repair marks from step two and write yes or no against the question: did it fail at the same place every time.
- Put the one question you cannot answer yourself to the tradesman you interview, and write their answer down word for word.

WRITE THIS DOWN

The arrowed load-path drawing, one paragraph naming the weak point in plain language, and the expert's answer as spoken.

DONE WHEN

You can point at one place on the object and explain, in a sentence a stranger follows, why the load ends up there.

Watch out. Blaming the material because that is easier to say. Most household failures are a fixing loosening, a sharp corner concentrating load, or a part hammering against a stop, so look at the joint before the metal.

6**Name the cost** 50 MINUTES**Finish the costed problem statement on one page and choose the single change you will make.**

- Write five lines: whose problem this is, failures per hundred uses, failures per fortnight, rupees per year, hours per year.
- Draw a bar chart on squared paper to a stated scale, rupees per year for your object beside the two runners-up from step one, with the finding as the title.
- List three possible fixes using only what is already in the house or the shop: a second fixing, a packing plate, a stop that limits travel, a doubled strap, a washer at the wear point.
- Choose one and write: 'I will change X to Y and expect failures per hundred uses to fall from A to B and failures per fortnight from C to D.'
- Read the page aloud to whoever owns the object and have them sign and date it if they agree to the change.

WRITE THIS DOWN

The one-page costed problem statement, the three candidate fixes with the failure each would prevent, and the chosen fix as one testable sentence.

DONE WHEN

Somebody who was not there reads the page once and repeats your rupees-per-year figure back correctly.

Watch out. Choosing a fix that needs something bought. Nothing bought is the rule, so cost the shop fix honestly on paper and reinforce with what is already there, or you will have nothing to measure.

7**Draw and fit it** 60 MINUTES**Draw the change to real dimensions, fit it, and write the protocol that keeps the after-test identical to the before-test.**

- Draw the reinforcement on squared paper to a stated scale, using the dimensions measured in step two, with the new fixing or plate shown in position.
- Write what stays fixed: same definition of one use, same load, same tester, same counter, same place, same speed, same hundred-count.
- Fit the change with what is already in the house; if a hand tool is needed, an adult holds the work, and nothing is cut, drilled or heated by you alone.
- Draw or photograph the object before fitting and after fitting from the same position, with the same item beside it for scale.
- Write your prediction on the page, date it, and have one person witness it with their signature before any after-data exists.

WRITE THIS DOWN

The scaled drawing, the fixed protocol as a numbered list, the two matched pictures and the witnessed, dated prediction.

DONE WHEN

The change is fitted, the protocol is written down, and a signed prediction predates the first after-test.

Watch out. Improving three things at once because you already have the tools out. One change only, or you can never say which one worked.

8

Test it again 60 MINUTES**Run the identical hundred-use test on the changed object and count failures exactly as before.**

- Read the protocol aloud before starting and check the load, the speed, the tester and the definition of one use line by line.
- Have the same counter mark the tally, and have them sign and date the sheet at the end.
- Record separately anything new that started going wrong because of the change, in its own column.
- Inspect the change afterwards and draw it: has it loosened, bent, worn or shifted position.
- Write down what went wrong on the day: a distracted count, a load that slipped, a helper who joined in halfway.

WRITE THIS DOWN

Failures per hundred uses after the change on a signed tally sheet, the inspection drawing, and a dated failure-log entry naming every deviation.

DONE WHEN

The after-test used the same load, speed and use-definition as the before-test, and the failure log holds at least one honest entry.

Watch out. Testing gently because you want the fix to work. Count out loud and let the witness watch the last twenty uses.

9

Fourteen days again 45 MINUTES ACROSS TWO WEEKS**Log failures in ordinary use for fourteen more days and compare like with like.**

- Tape a fresh tally card in the same place and log every failure with date, time, user and minutes lost, exactly as in the baseline fortnight.
- Check the object once a week for the change working loose, and write down what you find each time.
- Draw four bars on squared paper to one stated scale: failures per hundred uses before and after, failures per fortnight before and after.
- List every confounder you can name: colder or wetter weather, a lighter user, the object being used less because everybody knows it is being watched, a second repair somebody made without telling you.
- Redo the rupees and hours arithmetic longhand with the new failure rate and state whether the fix saved more than the time it took to make.

WRITE THIS DOWN

The four-bar chart, the new rupees and hours per year, the confounder list and the weekly inspection notes.

DONE WHEN

You can state the before figures, the after figures, and at least two reasons the difference might not be your doing.

Watch out. Reporting the hundred-use test and quietly dropping the fortnight log because it disagreed. Report both, and where they disagree, say so, because that disagreement is itself the finding.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record whether the change stays on the object.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Read the one-page explainer to three people who use the object and write down what each of them said.
- Hand the chart and the drawing to the tradesman you interviewed with one question: what would you have reinforced that I did not.
- Ask the owner of the object, in front of a witness, whether the change stays and why, and write the answer word for word.
- Complete the relations ledger with ten names, roles, dates and what each person replied.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, and the owner has said on record whether the reinforcement stays.

Watch out. Calling it a success because the object feels sturdier. The metric is failures counted, rupees and hours, so report those first and opinions second.

Your nine deliverables in this project

1 - RESEARCH - WEEK 2

Question card

One card naming the object, where it sits, who uses it, and the question: how often does this fail, what does each failure cost in rupees and minutes, and will one reinforcement stop it.

3 - RESEARCH - WEEK 4

Evidence log

Every tally sheet with its date and counter, the dimensions in millimetres, a photograph of each repair scar, every price with the shop it came from, and the timed minutes lost per failure.

5 - DESIGN - WEEK 5

The build

The fitted reinforcement itself with its dimensioned drawing, plus the test rig used for the hundred uses, and the four-bar chart of failures before and after on one axis.

7 - BRANDING - WEEK 5

Identity card

A name and a one-line promise for the reinforcement, so the household can ask for it by name, plus the single sentence you want repeated when somebody else's latch gives way.

9 - DEFENCE - WEEK 6

Defence video

Under three minutes on camera: the object, the failure point close up, the definition of one use, both before-counts, the change fitted, both after-counts, and the limits you accept without argument.

2 - OUTREACH - WEEK 3

Expert interview pack

Five written questions for a carpenter, welder, mechanic, tailor or maintenance technician, your load-path drawing and failure count attached, the date and channel of the request, and the reply recorded word for word.

4 - PROCESS - WEEK 5

Failure log

The counts you lost track of, the load that slipped, the fortnight interrupted by a holiday, the reinforcement that worked loose in week one, and what each of them did to the comparison, all dated.

6 - DESIGN - WEEK 5

One-page explainer

One page a neighbour reads in ninety seconds: the object, the failures per hundred uses, the rupees and hours per year, the one change, the after-counts, and what this test cannot tell anybody.

8 - OUTREACH - WEEK 6

Relations ledger

Ten names with dates and replies: one tradesman who repairs these, three people who use the object daily, three peers who checked your tally, and three people you sent the chart to who answered.

The four tiers, in this project

Starter

You choose one object, ask three users how often it fails, count the repair scars, run one hundred identical uses counting failures, and question one tradesman who repairs these for a living.

Researcher

You write the test protocol before the first count, justify one hundred uses and fourteen days rather than fewer, and quantify the error your tally, your load and your single tester introduce.

Practitioner

You define one use yourself and defend that definition, cite every price to the shop it came from, and produce one before-and-after chart a stranger reads correctly without you explaining the axes.

Contributor

You set your failure rate against a published component or maintenance standard, defend your method to a maintenance engineer who disagrees, and publish your tally sheets, dimensions and drawings openly so others can repeat it.

The one expert you must talk to

Who. A carpenter, welder, motorcycle mechanic, tailor, plumber or building maintenance technician - somebody paid to repair this class of object, who therefore knows which part goes first and how soon it comes back.

Where to find one. The furniture workshop, welding shop, tailor or hardware market nearest you, visited at a quiet hour rather than a busy one. A school, hospital, hotel or factory maintenance technician is reached through the office by asking for whoever fixes the doors. A motorcycle mechanic on the main road repairs the same failure forty times a week and will talk while working.

SEND EXACTLY THIS

Hello, my name is [name]. A [object] in our house has failed four times this year and I have counted what each failure costs us in rupees and minutes. You repair these for a living, so you know why they go. Could you give me fifteen minutes at a quiet hour for five questions? I will bring the broken part.

Ask them

1. Of the ones people bring you, which part fails first, and what is it about that part that makes it first?
2. When you repair this, do you put it back exactly as it was, or do you change something, and what do you change?
3. How long does your repair last compared with the original, and how do you know that?
4. What would you have to see to say a thing is genuinely worn out rather than badly fitted?
5. If somebody wanted this to stop failing and could spend nothing at all, what would you tell them to do?

You will be asked, without warning

1. Would the failures have dropped anyway without your change, and how do you know?
2. Your hundred-use test and your fortnight log point in different directions. Which do you believe, and what would settle it?
3. You counted for fourteen days before and fourteen days after. Convince me those two fortnights were comparable, and name what was not.
4. If your reinforcement works loose in three months, what was this project worth, in rupees and in hours?

If you get stuck

- If nobody will talk to you - then go to the hardware market or the furniture workshop at the quiet hour, buy nothing, and ask one repairer two questions while they work.
- If your before and after look the same - then check first whether the change is still fitted and still tight, count how many times the object was actually used in each fortnight, and report the null result with both use-counts beside it.
- If you cannot produce the failure in a controlled test - then drop the hundred-use test, say so plainly, extend the ordinary-use log to a fixed longer period before and after, and make that log your only metric.
- If you run out of time - then shorten both logging periods to the same seven days rather than dropping the baseline, and write the shortened period on the chart itself.

Finished early?

Fit the same reinforcement to an identical object in a second household and run the identical hundred-use test on both.

The Four-Hundred-Rupee Leak

Read your own meter for a week and find the one appliance quietly taking hundreds of rupees a month.

THE QUESTION

Which single appliance or habit in your home costs the most rupees per month, measured from your own meter rather than guessed?

A household that cannot say where its units go cannot argue with its bill, and neither can a school, a hospital or a factory. Energy auditing is a trade built on exactly this method - baseline, isolate, convert to money, change one thing, measure again - and it is paid for because the savings pay for it. Grid operators, solar installers and building managers all hire people who can defend a before-and-after number in front of somebody who does not want to believe it.

ACT 1 - FIND

You read your own meter at the same two times every day for a week to build a baseline, then isolate one appliance by running it alone for a measured period and reading the meter before and after. You convert units to rupees using the tariff printed on your household's own bill, and you log load-shedding, generator and UPS hours every single day.

A one-page costed problem statement carrying five lines: whose bill, units per month for the one appliance, rupees per month at your household's own rate, rupees per year, and that appliance's share of the whole house. Behind every line sits a dated meter photograph or a circled line on the bill.

ACT 2 - FIX

You change exactly one thing that costs nothing - a setting, a timing, a habit, a door seal, or a bulb already in the house - and keep reading the meter at the same two times for three weeks. The isolation test is repeated under the new condition, and load-shedding hours are logged for both periods so the comparison survives them.

A chart of the baseline week against weeks one, two and three in units and in rupees, plus the mean after-figure, the next printed bill set beside your own arithmetic, a named confounder list, and the bill-payer's recorded answer on whether the change stays.

YOU MEASURE

rupees per month for one appliance or one habit

BEFORE

Units per hour taken from a timed isolation run against the meter, multiplied by hours actually tallied per week, multiplied by the rupee-per-unit rate calculated from your household's own bill. Load-shedding, generator, solar and UPS hours are recorded for the same week.

AFTER

The same isolation test and the same twice-daily meter readings repeated for three weeks after the change, compared with the baseline week and with the next printed bill, with load-shedding hours stated for both periods.

Safety and ethics - not optional

- Never open, unscrew or remove the cover of anything: an appliance, a socket, a switch plate, a distribution board, a fuse box or the meter itself. If a test needs a cover to come off, the test is out of scope - choose a different appliance.
- Never touch wiring, terminals, exposed metal or the face of the meter. Every reading is taken by looking only, from normal standing distance, with dry hands and dry feet, and never in the rain or with wet floors underfoot.
- Switch appliances on and off only at the plug or the wall switch the household already uses every day, and only with the person who runs the household agreeing beforehand. Never at the main board. Never climb or stand on anything to reach a meter mounted high - ask somebody else in the household to stand beside you and read it out instead.
- Record load-shedding, generator, solar and UPS hours every day of both periods. Power that did not come through the meter breaks the comparison, and a before-and-after made without that note is worth nothing.

WHAT YOU USE - NO-TECH ROUTE

The printed electricity bill, this month's and last month's

A notebook ruled into six columns with a pen and a ruler: date, time, reading, difference, load-shedding hours, notes

A clock or watch showing minutes, used for the timed isolation run

A torch for reading the meter after dark, held by somebody standing beside you

Squared paper for the day-block and before-and-after charts, drawn to a stated scale

A tally card kept beside the appliance for start and stop times

The meter is already an instrument and the bill is already printed, so a notebook, a watch and a pen produce exactly the same rupee figure as any spreadsheet.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Find the meter 40 MINUTES

Locate your meter, work out what its display means, and take the first dated reading without touching anything.

- Stand in front of the meter in daylight and copy every figure on the face into the notebook exactly as it appears, hands at your sides.
- Copy the meter number printed on the front and check it against the meter number printed on the bill.
- Identify which figure is the units total in kWh; on a digital meter press nothing and wait for the display to cycle to that screen by itself.
- Sketch the meter face and label what each figure means, marking the decimal digit if there is one.
- Rule the log columns: date, time, reading, difference, load-shedding hours, notes.

WRITE THIS DOWN

The meter number, the meter type, the labelled sketch, and the first reading with date and time to the minute.

DONE WHEN

The labelled sketch and the first reading are in the notebook, and the meter number matches the bill.

Watch out. Pressing buttons on a digital meter to reach the screen you want. Press nothing and wait. If units never appear, copy every screen down and ask the expert which one it is.

2 Seven days of readings 10 MINUTES TWICE A DAY FOR SEVEN DAYS

Build the baseline by reading the meter at the same two clock times every day for a week.

- Choose two fixed times, for example 07:00 and 22:00, and agree with the household that somebody reminds you at each.
- At each time copy the reading into the log with the actual clock time, in ink, without correcting earlier entries.
- Write load-shedding start and end times every day, and any hours run on a generator, a UPS or solar.
- Subtract longhand in the difference column to get day-block units and night-block units.
- Add one word for the weather and a note on whether the house was fuller or emptier than usual.

WRITE THIS DOWN

Fourteen readings, seven day-block totals, seven night-block totals, and a load-shedding line for every day including the zeros.

DONE WHEN

Seven complete days with no missing reading, and every day carries a load-shedding note even when it is zero.

Watch out. Reading at 'about ten'. A reading an hour late wrecks the block comparison - write the real clock time and subtract from that.

3 Read the bill properly 45 MINUTES

Turn your household's own printed bill into a rupee-per-unit rate you can defend.

- Lay this month's and last month's bills side by side and circle in pen: units billed, the slab breakdown, fixed charges, every tax line, and the total payable.
- Copy twelve months of billed units from the consumption history box printed on the bill itself into your notebook.
- Divide total payable by units billed, longhand, to get the average rate, and copy the slab rate your next unit falls into from the tariff table printed on the bill.
- Write one sentence naming which rate you will use for the appliance costing and why.

WRITE THIS DOWN

Twelve months of billed units, both rupee-per-unit rates with the working shown, and the reason for the rate you chose.

DONE WHEN

You can say what one extra unit costs your household tonight and put your finger on the printed line that proves it.

Watch out. Using the headline slab rate and ignoring taxes and fixed charges. Show both rates: the marginal rate is what a saved unit is worth, the average rate is what the bill feels like.

4 Isolate one appliance 60 MINUTES

Measure what one appliance draws by running it alone against the meter.

- Agree one appliance with the household: an air conditioner, a fridge, a water pump, a geyser, an iron, a heater, or the lights on one floor.
- Copy the wattage and voltage printed on the appliance's own label, without moving it, opening it or removing any cover.
- Agree a quiet window, then switch off every other load at the wall switches the household already uses, leaving only the one appliance running.
- Copy the meter reading and the clock time, run the appliance for a measured thirty to sixty minutes, then copy the reading and the time again.
- Divide units used by hours run longhand to get units per hour, then repeat the whole test on a second day to see whether the figure holds.

WRITE THIS DOWN

Start reading, end reading, minutes run, units per hour with the working shown, the label wattage, and the gap between the two test days.

DONE WHEN

Two independent isolation tests give units per hour within a tenth of each other, or you have written down exactly why they do not.

Watch out. Forgetting the fridge, the router and the standby lights. Anything left on lands inside your appliance's figure - list what could not be switched off and subtract its measured share.

5 Count the hours 40 MINUTES ACROSS THE SAME WEEK

Tally how many hours the appliance actually runs and turn that into rupees per month.

- Keep a tally card beside the appliance and mark every start and stop time for seven days.
- For a fridge or a pump that cycles on its own, sit with it for a full hour with the watch and count the minutes it actually runs, twice at different times of day.
- Multiply units per hour by hours per week, then by 4.33 weeks, then by your chosen rate, showing every multiplication on the page.
- Set the figure against the whole-house units from step two and write what percentage of the house this one appliance is.

WRITE THIS DOWN

Hours per week, units per month, rupees per month for this one appliance, and its share of the whole house.

DONE WHEN

The appliance figure exists in rupees per month and it is smaller than the whole-house bill.

Watch out. An appliance that appears to cost more than the entire bill. The isolation test or the hours are wrong - redo the test before writing another line.

6 Name the leak 50 MINUTES**Finish the costed problem statement on one page and choose the single change you will make.**

- Write five lines: whose problem this is, units per month, rupees per month, rupees per year at today's tariff, and share of the whole house.
- Draw the seven day-blocks and seven night-blocks as paired bars on squared paper, scale stated, titled with the finding.
- List three candidate changes that cost nothing: a thermostat or fan setting, a timing shift, a door seal pressed back, a bulb already owned, or one habit.
- Choose one and write: 'I will change X for three weeks and expect this appliance to fall from A units per week to B.'
- Read the page aloud to whoever pays the bill and have them sign and date it if they agree to the change.

WRITE THIS DOWN

The one-page costed problem statement, the three candidate changes, and the chosen change as one testable sentence.

DONE WHEN

Somebody who was not there reads the page once and repeats your rupee figure back correctly.

Watch out. Choosing a change that needs something bought. Use what is already in the house, or the result measures money spent rather than a habit changed.

7 Set the after rules 40 MINUTES**Write the protocol that makes the after-measurement comparable with the before.**

- Write what stays fixed: the same two clock times, the same meter, the same rupee rate, the same appliance, the same tally card.
- Write what is allowed to move: only the one thing you named in step six.
- Rule twenty-one blank dated rows in the notebook before any data exists.
- Write the confounders you already expect: weather, guests, load-shedding hours, a different person using the appliance.
- Write your prediction of the after figure, date it, and have one person witness it with a signature.

WRITE THIS DOWN

The numbered protocol, the twenty-one blank dated rows, the confounder list, and the witnessed, dated prediction.

DONE WHEN

The notebook holds empty dated rows for three weeks and a signed prediction that predates the data.

Watch out. Changing two things at once because both looked easy. Two changes give one number you cannot attribute to either - change one and keep the second for the stretch.

8 Measure week one 10 MINUTES TWICE A DAY FOR SEVEN DAYS**Run the change for seven days and read the meter exactly as you read it before.**

- Take both daily readings at the same two clock times and write them in ink with the real time.
- Keep the tally card running exactly as it ran in Act 1.
- Repeat the isolation test once under the new setting and record units per hour again.
- Write load-shedding and generator hours daily, and mark the week as disturbed if those hours moved sharply against the baseline week.
- Write down every slip: a missed reading, a night the change was forgotten, a guest who reversed it.

WRITE THIS DOWN

Seven days of readings, one repeated isolation test, the hours tally, and a dated failure entry.

DONE WHEN

Week one is complete with no blank rows and the failure log holds at least one honest entry.

Watch out. Being unusually careful with electricity all week because you are watching yourself. Name that effect in the log - it is the reason you measure for three weeks and not one.

9

Weeks two and three 60 MINUTES PLUS THE DAILY READINGS**Repeat two more weeks, then check your finding against the next printed bill.**

- Take the same two readings daily for a further fourteen days without altering anything else.
- Add the three after-weeks and divide by three, longhand, then set the mean against the baseline week.
- When the next bill arrives, compare its billed units with your own arithmetic and write out any gap and the reason for it.
- Draw four bars on squared paper to one stated scale: baseline, week one, week two, week three, labelled in units and in rupees.
- Write the confounder paragraph: temperature, load-shedding hours, people in the house, and anything else that moved.

WRITE THIS DOWN

The four-week chart, the mean after-figure, the bill comparison with its explanation, and the confounder paragraph.

DONE WHEN

You can state the before figure, the after figure, and at least two reasons the difference might not be your doing.

Watch out. Blaming the bill when it disagrees with your notebook. Check the billing dates first - a bill rarely covers the same days you measured.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record what the household will keep.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Read the one-page explainer to three neighbouring households on the same tariff and write down what each of them said.
- Hand or post the chart to the expert you interviewed with one question: what would you have measured that I did not.
- Ask whoever pays the bill, in front of a witness, whether the change stays and why, and write the answer word for word.
- Complete the relations ledger with ten names, roles, dates and replies.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, and the bill-payer has said on record whether the change stays.

Watch out. Presenting the rupee saving without the load-shedding note. Everyone on your street will ask about it - answer it before they do.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card naming the household, the meter number and the appliance under test, and the question: what does this one appliance cost per month, measured from the meter rather than guessed.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for an energy auditor or maintenance engineer, your isolation figures attached as one page, the date and channel of the request, and the reply recorded word for word.

3 - RESEARCH - WEEK 4**Evidence log**

Every meter reading with its clock time and photograph or ink entry, both isolation tests with start and end readings, the circled tariff lines, and a load-shedding note for every single day.

4 - PROCESS - WEEK 5**Failure log**

The readings missed, the night the change was forgotten, the isolation test spoiled by a load you could not switch off, and what each of them did to the comparison, all dated.

5 - DESIGN - WEEK 5

The build

The measurement rig itself - the log, the tally card, the two fixed alarm times, the isolation procedure written as steps - plus the four-week before-and-after chart on one axis.

7 - BRANDING - WEEK 5

Identity card

A name and a one-line promise for the measurement, so the household refers to it by name, plus the single sentence you want repeated to the neighbour who asks about their own bill.

9 - DEFENCE - WEEK 6

Defence video

Under three minutes on camera: the meter, the isolation method, the rupee figure, the one change, the three-week result, the bill comparison, and the limits you accept without argument.

6 - DESIGN - WEEK 5

One-page explainer

One page a neighbour reads in ninety seconds: the appliance, the rupees per month, the change made, the three-week result, the load-shedding caveat, and what the figure cannot prove.

8 - OUTREACH - WEEK 6

Relations ledger

Ten names with dates and replies: one energy auditor or engineer, three people who pay or share this bill, three peers who checked your arithmetic, three people you sent the chart to who answered.

The four tiers, in this project

Starter

You take fourteen meter readings at two fixed times, isolate one appliance with a timed run, convert units to rupees from your own bill, and put your questions to one stranger.

Practitioner

You choose the appliance and defend the choice, cite the exact tariff line you used, and make one chart a stranger reads correctly without you standing there explaining the axes.

Researcher

You state the protocol before measuring, justify three after-weeks rather than one, and quantify how load-shedding hours, weather and the loads you could not switch off limit your figure.

Contributor

You set your measured figure against the appliance's rated wattage and the published tariff schedule, defend the isolation method to an energy auditor, and publish every reading openly for recomputation.

The one expert you must talk to

Who. An energy auditor, or the maintenance engineer or technician who manages the electricity bill for a school, hospital, hotel, mill or small factory. A solar installer who sizes loads for a living works just as well.

Where to find one. Ring the office of a nearby school, hospital, hotel or small factory and ask for whoever signs off the electricity bill. Search LinkedIn for 'energy auditor' plus your city. Your distribution company's customer services office keeps an energy-conservation desk. Any solar installation company employs somebody who sizes household loads all day.

SEND EXACTLY THIS

Hello, my name is [name]. I read my house meter twice a day for a week, then ran one appliance alone to cost it. My figure is [amount] rupees a month and I think my method has a hole in it. Could you spare fifteen minutes on the phone this week to tell me where?

Ask them

1. When you audit a building, what do you measure first, and why that before anything else?
2. My isolation test ran for forty minutes with everything else switched off. What is still drawing current in a house at that moment?
3. Would you cost a saved unit at the marginal slab rate or at the average rate, and why?
4. How do you separate a real saving from a change in the weather or in load-shedding hours?
5. What is the commonest appliance you find people are wrong about, and how wrong are they?

You will be asked, without warning

1. Would the bill have fallen anyway without your change, and how do you know?
2. Your isolation test ran for forty minutes on one day. What else was drawing current at that moment, and how many units did it add?
3. The tariff has slabs. If your household crossed a slab boundary during the three weeks, what happens to your rupees-per-month figure?
4. Somebody says your saving is just cooler weather and lighter load-shedding. Answer them using only your own data.

If you get stuck

- If nobody replies to your messages - then walk into a nearby school or small factory office and ask for the person who checks the electricity bill; ask two questions standing up.
- If your before and after look the same - then compare load-shedding hours across both periods first, then report the null result with the numbers, because an honest zero is a finding.
- If you cannot isolate the appliance because nothing else can be switched off - then agree a one-hour window with the household when only that appliance runs, measure the whole house, and write down the residual load you could not remove.
- If you run out of time - then shorten the after-period to two weeks, keep the twice-daily readings intact, and state the shortened period on the chart rather than filling the gaps in.

Finished early?

Isolate a second appliance and rank every measured load in the house by rupees per month, so the household can see which one to attack next.

The Ten Minutes That Teach

Teach five people the same ten minutes, test them twice, and count what seventy-two hours quietly deletes.

THE QUESTION

How much of one ten-minute lesson is still there in the people you taught three days later, and does changing one thing about how it is revised keep more of it?

Organisations spend enormous sums on training that nobody checks three days afterwards, and the field that does check - instructional design and learning measurement - is paid precisely because forgetting is expensive and invisible. A trainer who can show a retention curve instead of a satisfaction form is worth more than one who cannot, in schools, in hospitals, in factories and in software companies. The method here is the standard method: identical content, identical questions, identical gap, one variable changed, and the limits reported rather than buried.

ACT 1 - FIND

You take one small, self-contained thing you can teach fully in ten minutes, teach it identically to at least five people, and test them immediately with five written questions marked against a key you wrote first. Seventy-two hours later, with no warning, no reminder and nothing to revise, you give the identical five questions again, and the distance between the two scores is your finding.

A one-page costed problem statement carrying five lines: who was taught, the mean immediate score, the mean score at seventy-two hours, the percentage lost, and what that loss is worth in minutes of teaching per week and hours or rupees per year at the rate teaching is actually paid for here. Beside it sits a two-point line for the group, marked with the number of people and the exact gap in hours.

ACT 2 - FIX

You change exactly one thing about how the lesson is revised - a two-minute recap at day one, one practice question at day one, the learner explaining it back at the end, or a written summary in their own words - and you teach a second, comparable group the identical ten minutes from the same script. The same five questions are asked at the same two moments and marked to the same key by the same person.

Two lines on one chart, one per group, each running from the immediate score to the seventy-two-hour score, with the number of people on each, the retained percentage for each, the difference between them, and a written list of every way the two groups were not alike.

YOU MEASURE

the share of an immediate test score still present after seventy-two hours

BEFORE

Five or more people taught the same ten minutes from a written script, tested at once on five written questions marked one mark each against a key written before anybody answered, then given the identical five questions in the identical order seventy-two hours later, unannounced, with no revision in between. The baseline is the group mean second score expressed as a percentage of the group mean first score.

AFTER

A second group of at least five, taught the same ten minutes from the same script by the same teacher, with one named change to how the material is revised, tested at the identical two moments with the identical five questions, marked to the same key by the same person, and expressed as the same percentage.

Safety and ethics - not optional

- Consent every time, in words, before every session and before every test. Each person is told that this is a study about forgetting rather than about them, what will happen to their answers, and that they may stop at any moment, refuse the second test, or ask for their answers to be destroyed, with no reason given and nothing said about it afterwards.
- Scores stay private. Everybody becomes a code before anything is written down; no name goes on an answer sheet, into a form or onto a chart; nobody sees anybody else's score; nobody is ranked, compared aloud, told they did badly or told who scored highest. The page linking codes to names stays with you, out of sight, and is destroyed when the project ends.
- Never test anybody on work they are being formally graded on. Choose a small neutral topic that touches no real mark anywhere, because a poor result here must never reach a report, a file or a mark book. The topic is never personal, religious or political, and no question asks about anybody's beliefs, family, income or ability.
- No pressure and no rewards that make refusal awkward. At the second test, ask again rather than assuming, and record anybody who declines as a withdrawal, removing their first score from the analysis and saying so in the report.

WHAT YOU USE - NO-TECH ROUTE

A notebook and a pen, plus one master question sheet copied out by hand as many times as there are people, twice over

A clock or a watch with a second hand for the ten minutes, and a calendar for fixing the second test at seventy-two hours

An envelope for the marked sheets, and a separate folded page holding the code-to-name key, kept out of sight of everybody

Squared paper for the two retention curves, drawn to a stated scale

The consent sentence written at the top of every sheet and read aloud before every session

A written marking key on its own page, finished before the first sheet is handed out

Hand-copied question sheets, a clock and squared paper produce the same retention figure; the sheets are identical because you copy them from one master, and the codes keep the scores private without any software.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Choose the ten minutes 40 MINUTES

Pick one small, self-contained, neutral thing you can teach completely in ten minutes, and write the script.

- List five candidate topics you could teach fully in ten minutes: a knot, the rules of a card game, how a lock works, the parts of a bicycle brake, five words of a language nobody in the room speaks.
- Strike out any topic that appears on somebody's syllabus this term, and any topic touching belief, politics, family or money.
- Write the ten-minute script word for word in the notebook, including the examples and the exact order, so the second group hears the identical lesson.
- Read the script aloud twice against a clock with a second hand and cut or pad until it lands between nine and eleven minutes both times.
- Write one sentence on why this topic is safe to test: it touches no mark, no belief and nobody's private life.

WRITE THIS DOWN

The chosen topic, the safety sentence, and the full script with both timed lengths recorded.

DONE WHEN

The script runs to time twice in a row and contains nothing about anybody's beliefs, family, ability or graded work.

Watch out. Choosing something you know well and improvising around the script. Improvisation means the two groups get different lessons, and then nothing you measure afterwards means anything.

2

Write the five questions 45 MINUTES**Build one master test sheet with its marking key, so the identical paper can be given twice.**

- Write five short questions that can only be answered by somebody who received this lesson, one mark each, with no half marks anywhere.
- Write the marking key on its own page, stating exactly what earns a mark and what does not, before a single answer exists.
- Copy the master sheet out by hand once per person for the first test and again for the second, with a code box at the top and no name line.
- Give one copy to a person who has not had the lesson; their score tells you how much of your test can simply be guessed.
- Write both test moments on the calendar now: immediately after teaching, and exactly seventy-two hours later to the hour.

WRITE THIS DOWN

The master sheet, the marking key page, the untaught person's score, the count of copies made, and the two fixed test moments.

DONE WHEN

Somebody who never had the lesson scores near zero, and the key decides every mark without you having to think.

Watch out. Copying the sheet from memory the second time and changing a word. Copy every sheet from the one master; a reworded question is a different question and the comparison dies with it.

3

Ask and consent 40 MINUTES**Recruit at least five people, take consent in words, and give everybody a code instead of a name.**

- Find at least five people who can give you ten minutes now and five more minutes in three days, and ask each one face to face.
- Read the consent sentence at the top of the sheet aloud to each person: this is a study about forgetting, not about you; your score is never shown to anyone; you can stop at any moment and I will destroy your answers.
- Give each person a code, tell them what it is, and write the code-to-name key on a folded page kept apart from the sheets.
- Record consent as a tick, a code and a date, and note that consent will be asked for again at the second test.
- Write one neutral line per person on things that could affect the result: prior knowledge, reading comfort, the language of the lesson.

WRITE THIS DOWN

The consent record by code and date, the folded code page kept apart, and the one-line profile of each participant.

DONE WHEN

Five or more people have consented aloud, hold a code, and know they can stop; no name sits anywhere near a score.

Watch out. Recruiting only the people who are good at tests because they are easy to ask. Write down who you asked and who declined, because a group of five willing friends is a limit you must report, not hide.

4

Teach and test now 45 MINUTES**Deliver the ten minutes from the script and test everybody immediately.**

- Teach from the script without adding examples, without answering extra questions, and time every session against the clock.
- Hand out the copied sheets the moment the lesson ends, with no discussion in between and the participants seated apart.
- Check each sheet carries a code and not a name before you collect it, and put the collected sheets straight into the envelope.
- Mark every sheet against the key page and write the score against the code in the notebook, never against a name.
- Tell everybody truthfully that there is nothing to revise and that they should carry on as normal.

WRITE THIS DOWN

The immediate score out of five for each code, the timed length of each session, and any deviation from the script.

DONE WHEN

Every code has a first score, the sessions ran within one minute of each other, and every collected sheet is anonymous.

Watch out. Answering one good question during the lesson and giving that person extra content. Write the deviation down and report it rather than pretending the lesson was identical when it was not.

5

Test at seventy-two hours 40 MINUTES**Give the identical five questions again after exactly three days, unannounced, and measure the drop.**

- Wait the full seventy-two hours without reminding anybody, handing out anything or discussing the topic in front of them.
- Ask each person again whether they are willing, and record anybody who declines as a withdrawal, removing their first score and destroying their sheet.
- Hand out the second set of copies from the same master, identical questions in the identical order, and mark to the same key.
- Ask each person one question afterwards and write the answer down: have you thought about this or talked about it since.
- Work out the drop for each code longhand, then the group means, then the second mean as a percentage of the first.

WRITE THIS DOWN

The second score per code, the per-person drop, the group mean at both moments, the retained percentage, and the real gap in hours for anybody tested late.

DONE WHEN

You can state one number aloud: the percentage of the immediate score still there after three days.

Watch out. Letting the gap slip to five days because somebody is busy. Test at seventy-two hours, or write the real gap in hours beside that person's score, because a mixed gap makes the two groups incomparable later.

Act 2 – fix it and measure steps 6 to 10, ending with a proven effect

6

Name the loss 50 MINUTES**Finish the costed problem statement on one page and choose the single change you will test.**

- Write five lines: who was taught, the immediate mean, the three-day mean, the percentage lost, and what that loss is worth in minutes of teaching per week and in hours or rupees per year at the rate teaching is actually paid for here.
- Draw the group's two points on squared paper to a stated scale, labelled with the number of people and the exact gap in hours, with the finding as the title.
- List three possible changes: a two-minute recap at day one, one practice question at day one, the learner explaining the lesson back at the end, a written summary in their own words.
- Choose one and write: 'The second group gets X and nothing else changes; I expect retention to rise from A per cent to B per cent.'
- Read the page aloud to one person who was not involved, and write down the first thing they did not understand.

WRITE THIS DOWN

The one-page costed problem statement, the three candidate changes, the chosen change as one testable sentence, and the known limit stated in advance.

DONE WHEN

Somebody who was not there reads the page once and repeats your percentage-lost figure back correctly.

Watch out. Changing the topic as well as the revision because the first lesson felt weak. One variable moves; if the lesson was weak, it stays exactly as weak for the second group.

7

Match the second group 40 MINUTES**Recruit and consent a second, comparable group of at least five, and record honestly how they differ from the first.**

- Recruit at least five people who had no contact with the first group's lesson and who have not heard the topic discussed.
- Read the same consent sentence aloud, record consent by code and date, and use a separate letter series so the two groups are never mixed up.
- Write the same one-line profile for each person: prior knowledge, reading comfort, language of the lesson.
- Rule two columns on one page, one group each, and write every way the groups are not alike under a heading that says 'limits'.
- Write both test moments and the exact moment of the change on the calendar, and copy out the sheets for both tests from the same master.

WRITE THIS DOWN

The second group's consent record, profiles, the two-column comparison of the groups, and the written list of differences.

DONE WHEN

Five or more people have consented, hold codes in a separate series, and the ways the groups differ are written down before any teaching happens.

Watch out. Claiming the groups are the same because they are the same size. Same size is not same group; write what actually differs and say plainly that it limits what you can conclude.

8

Teach group two 45 MINUTES**Deliver the identical ten minutes to the second group and test immediately with the identical sheets.**

- Read the same script word for word, timed against the same clock, adding nothing and answering no extra questions.
- Deliver the change here if it belongs at teaching time, such as the learner explaining it back or writing a summary in their own words, and time that separately.
- Hand out the copied sheets the moment the lesson ends, collect them into the envelope, and check every sheet carries a code.
- Mark against the same key page and write the scores in the notebook under the second group's codes.
- Compare the two immediate means longhand and write one line on whether the groups started level; if they did not, say so now rather than at the end.

WRITE THIS DOWN

The second group's immediate score per code, the timed session length, the time taken by the change, and the comparison of the two immediate means.

DONE WHEN

Every code in the second group has a first score, and you have stated in writing whether the two groups started level.

Watch out. Teaching the second group better because you have had practice. Read the script; a lesson delivered more warmly the second time is a second variable you cannot separate out.

9

Change and retest 50 MINUTES ACROSS THREE DAYS**Deliver the change at the agreed moment, retest at seventy-two hours, and draw the two curves side by side.**

- Deliver the change exactly as written and at the agreed hour, timing it and recording who received it and who was missed.
- Test at exactly seventy-two hours from the lesson, asking consent again and recording any withdrawal.
- Mark to the same key, then draw both groups on one sheet of squared paper as two lines from immediate to seventy-two hours, each labelled with its number of people.
- Write the difference in retained percentage between the groups as a number, and say plainly whether five people per group can settle it.
- List every confounder: different people, a different day of the week, one group taught in a noisier room, somebody who discussed the topic with a friend, a lesson that ran a minute long.

WRITE THIS DOWN

The second group's seventy-two-hour scores, both retained percentages, the two-line chart, the difference between them, and the confounder list.

DONE WHEN

You can state both retained percentages, the difference between them, and at least two reasons that difference might not be caused by your change.

Watch out. Reporting the difference as proof. With five people per group a difference can easily be the people rather than the method, so report the number and the uncertainty in the same breath.

10

Share and reflect 60 MINUTES**Publish the finding without naming anybody, defend it to real people, and record what you would keep.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page: the topic, both groups, the two curves, the one change, the difference and the limits, using codes and never names.
- Read the one-page explainer to three people who teach or train and write down what each of them said.
- Hand the two-curve page to the teacher or trainer you interviewed with one question: what would you have controlled that I did not.
- Tell every participant their own result privately if they want it, tell them nobody else has seen it, and burn or tear up the code page in front of one witness.
- Complete the relations ledger with ten names, roles, dates and what each person replied.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, the note recording that the code page was destroyed, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, and no participant's score can be traced back to a name by anybody, including you.

Watch out. Showing the curves with a name or a recognisable description beside a low score. Codes only, in the defence, the explainer and the ledger, with no exceptions for people who say they do not mind.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card naming the ten-minute topic, how many people were taught and the gap in hours, and the question: how much survives seventy-two hours, and does one change to revision keep more.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for a teacher, trainer, tutor or learning researcher, your first retention curve attached as one page, the date and channel of the request, and the reply recorded word for word.

3 - RESEARCH - WEEK 4**Evidence log**

The script, the five questions, the marking key written before any answer, the consent record by code and date, every score against its code, and the exact gap in hours for every person tested.

4 - PROCESS - WEEK 5**Failure log**

The person tested at ninety hours instead of seventy-two, the withdrawal, the lesson that ran twelve minutes, the participant who discussed the topic with a friend, and what each did to the comparison.

5 - DESIGN - WEEK 5

The build

The study instrument itself - script, five questions, marking key and consent wording - together with the two-line retention chart running from the immediate score to the seventy-two-hour score for both groups.

6 - DESIGN - WEEK 5

One-page explainer

One page a stranger reads in ninety seconds: the topic, the percentage lost in three days, the one change, the second group's result, the difference, and what a study this small cannot tell anybody.

7 - BRANDING - WEEK 5

Identity card

A name and a one-line promise for the revision method you tested, so a teacher can ask for it by name, plus the single sentence you want repeated by somebody who has just finished teaching.

8 - OUTREACH - WEEK 6

Relations ledger

Ten names with dates and replies: one teacher, trainer or learning researcher, three people the forgetting affects, three peers who checked your key, and three people you sent the chart to who answered.

9 - DEFENCE - WEEK 6

Defence video

Under three minutes on camera, using codes and no names: the topic, both groups, both retention curves, the one change, the difference, and the limits of five people per group accepted without argument.

The four tiers, in this project

Starter

You teach the same ten minutes to five people, test them immediately and again at seventy-two hours with the identical five questions, and report the percentage lost with everybody's consent recorded.

Practitioner

You choose and defend your own topic and sample, write the marking key before any answer exists, cite anything you borrowed, and produce one chart a stranger reads correctly without you explaining the axes.

Researcher

You write the whole protocol before teaching, justify five people and seventy-two hours rather than fewer or longer, and quantify what a single marker, a small group and volunteer recruitment do to your result.

Contributor

You set your retention figures against published work on spaced revision, defend your controls to a specialist who disagrees, and publish the script, the questions, the key and the anonymised scores openly.

The one expert you must talk to

Who. A teacher, a corporate or vocational trainer, a private tutor or a learning researcher - somebody who has to make material stick and finds out when it does not.

Where to find one. Any nearby school or college staff room at the end of the day, asked through the office. Training departments at hospitals, banks and factories employ trainers who run the same course repeatedly. University education departments publish staff emails. A private tutor who has taught the same material for years will answer the retention question faster than anybody.

SEND EXACTLY THIS

Hello, my name is [name]. I taught five people the same ten minutes and tested them straight away and again three days later. A large part of it had gone, and the number surprised me. Could you spare fifteen minutes this week to tell me what I measured wrongly? I will send my five questions first.

Ask them

1. When you teach something once, how much do you expect to be there three days later, and what makes you think that?
2. What do you do differently for the material you cannot afford to have forgotten?
3. How would you check whether your teaching worked, if nobody gave you a test to use?
4. What makes a test question a fair test of a lesson rather than a test of general knowledge?
5. If you had two small groups and one change between them, what would you be most worried about in the comparison?

You will be asked, without warning

1. Would the second group have remembered more anyway without your change, and how do you know?
2. Your two groups were different people. Name every way they differed and tell me which difference could have produced your whole result on its own.
3. Five people per group. Convince me that is enough to say anything, and tell me what number would have satisfied you.
4. Somebody in the second group says they thought about the topic on day two. What does that do to your finding, and what did you do about it?

If you get stuck

- If nobody will be taught by you - then teach the ten minutes to people who already owe you five minutes, such as the family you live with and one neighbour, and report plainly that a convenience sample is what you had.
- If your two groups look the same - then report the null result, check first whether the change was actually delivered to every person and at the agreed hour, and put the delivery record beside the chart.
- If you could not test at seventy-two hours - then record the real gap in hours for every person, use the same real gap for the second group, and report the gap you used rather than the gap you meant to use.
- If you run out of time - then keep both groups and shorten nothing about the method, dropping the third teaching session or the stretch rather than the seventy-two-hour test, because without the second test there is no finding at all.

Finished early?

Run a third group with a second revision change and put all three curves on one axis, keeping every other condition identical.

Where The Money Actually Went

Write down what you think you spend, seal it, log every rupee for fourteen days, then compare.

THE QUESTION

How many rupees a week actually leave one small purse, and in which category is the gap between what somebody believed and what really happened the largest?

A shop that cannot say where its cash went is one bad month from closing, and a household that cannot say it argues about the wrong thing. Bookkeepers, accountants, bank staff, microfinance officers and fintech product teams all earn their living from the same two moves you make here: capture an outflow at the moment it happens, then sort it into a category somebody else can audit. The gap between what people believe they spend and what they actually spend is the entire reason budgeting products exist, and you get to measure that gap on a real purse before anyone tries to sell you one.

ACT 1 - FIND

You track every rupee leaving one small purse for fourteen days - your own pocket money, a household grocery float, or a small shop's daily till logged with the owner's written permission - recording the amount, the category and who decided it, at the moment the money goes. On day one, before a single row exists, the person who holds that purse writes down what they believe leaves it in a normal week, and that page is sealed and not looked at again until day fourteen.

A one-page costed problem statement carrying four lines: whose purse this is, total rupees out per week, the category where the believed figure and the actual figure differ most, and what that gap comes to per year at this rate. Beside it sits a bar chart of rupees per week by category, guessed bar against actual bar, largest gap first.

ACT 2 - FIX

You change exactly one thing - a written limit on one category, a separate envelope for one category, one category logged where everybody can see it, or one habit dropped - and you leave the categories and the logging method untouched. You then log fourteen more consecutive days under the identical rule, so the only moving part is the change you named.

Two fortnights set side by side per category in rupees per week, a paired bar chart of before against after, the difference in rupees per week and per year, a named list of confounders, and the purse holder's recorded answer on whether the change stays.

YOU MEASURE

rupees leaving one purse per week, split by category

BEFORE

Fourteen consecutive days of logging every outflow from one purse at the moment it happens, each row carrying the amount, the category, the decider written as a role rather than a name, and what it was for. Totalled by category and divided by two for rupees per week, then set against the weekly figure the purse holder wrote down and sealed on day one, unopened until day fourteen.

AFTER

Fourteen more consecutive days logged from the same purse with the same categories, the same log, the same at-the-moment rule and the same fourteen-day length, beginning the day after the change starts, reported in rupees per week per category beside the first fortnight.

Safety and ethics - not optional

- You never handle money that is not yours. You are logging what leaves a purse, not carrying it, spending it or holding it - if the purse belongs to somebody else, they move every rupee and you write the row.
- Nobody's spending is logged without their explicit permission, asked again every time you log, and the log stops the day they ask it to stop, without them having to give a reason. A shop till is logged only with the owner's written permission, and the shop is never named in anything you publish.
- Nothing that identifies an account goes anywhere near this project. No card numbers, no account numbers, no PINs, no passwords, no photographs of cards or statements - not in the log, not in the chart, not in the video, not in a screenshot. Nobody's income is written down or published; you record only what left the purse.
- The optional needed, chosen and neither split applies to your own spending and to nothing else. Do not sort another person's outflows into it, do not write it up as a judgement of anybody, and if anything in the log would embarrass the person who holds the purse, it comes out of the shared version before it is shared.

WHAT YOU USE - NO-TECH ROUTE

A folded index card or small notebook kept with the purse, ruled into five columns: date and time, amount, category, who decided as a role, what it was for

A pen kept with the card, and a spare, because a log that depends on finding a pen fails on day three

An envelope for the day-one guess, sealed and signed across the flap by both people so the date cannot be argued with later

A second envelope, dated, holding the used daily cards so anybody can recount your totals

Squared paper and a ruler for the rupees-per-week bars and the paired before-and-after bars, drawn to a stated scale

A wall calendar or a ruled sheet with one box per day for twenty-eight days, for the daily totals

A folded card kept with the purse and a pen catch every outflow; the totals, the gap and the bars are worked out by hand at the end of each fortnight, and the day-one guess goes into an envelope sealed and signed across the flap.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Choose the purse 40 MINUTES

Pick the one purse you will track for twenty-eight days and get written permission if it is not your own.

- Choose one of three: your own pocket money, a household grocery float, or a small shop's daily till.
- Write at the top of a fresh page the one sentence that defines an outflow: any money leaving that purse, of any amount, including coins and including money spent for somebody else.
- Where the purse is not yours, ask the holder face to face and have them sign and date a page saying they agree and may stop the log on any day without giving a reason.
- Where it is a shop till, get the owner's permission in writing on that same page, and write on it that the shop will never be named in anything you publish.
- Fold the signed page into the evidence envelope and write the date on the outside.

WRITE THIS DOWN

The purse chosen, the one-sentence definition of an outflow, and the signed, dated permission page.

DONE WHEN

You can state in one sentence which purse you are logging, and where it is not yours a signed page carrying today's date sits in the envelope.

Watch out. Choosing a purse you only see once a week. Every outflow has to be caught at the moment it happens, so pick the purse that is in the room with you.

2

Seal the guess 30 MINUTES**Get the guess written down before a single rupee is logged.**

- Ask the person who holds the purse to write, in their own hand, what they think leaves it in a normal week: one total and a figure against each category.
- Write your own guess on a separate slip in the same shape, even where it is your own purse and your own money.
- Put both slips in an envelope, seal it, and have both of you sign across the flap so it cannot be opened and rewritten.
- Write on the front: today's date, and 'not to be opened until' with the day-fourteen date beside it.
- Hand the envelope to a third person to hold for the fortnight where you think you will be tempted to look.

WRITE THIS DOWN

Two guesses - the purse holder's and your own - each with a weekly total and a figure per category, both dated.

DONE WHEN

A sealed envelope exists, signed across the flap, with two dates written on the front.

Watch out. Guessing after you have started logging. A guess written on day three is not a guess, and the whole finding rests on this envelope predating the data.

3

Build the log 40 MINUTES**Build a card system that records one outflow in under fifteen seconds.**

- Write your category list on one page, between six and ten categories, each one a thing a stranger could sort a purchase into without asking you.
- Rule a pocket card into five columns: date and time, amount, category, who decided as a role, what it was for.
- Make fourteen cards at once, one per day, each headed with its date, and keep them with a pen where the purse lives.
- Write three invented rows on a spare card to check the columns work in your hand, then tear that card up.
- Add a small box headed 'estimated' on every card, to tick against any amount you reconstructed rather than saw.

WRITE THIS DOWN

The category list, the five column headings, and fourteen dated blank cards.

DONE WHEN

You write a test row on the spare card in under fifteen seconds and every column has something in it.

Watch out. Building fifteen categories because every purchase feels different. Above ten you start guessing which one a row belongs in, which puts your own noise inside the finding.

4

Log fourteen days 10 MINUTES A DAY FOR FOURTEEN DAYS**Record every outflow from that purse at the moment it happens, for fourteen consecutive days.**

- Write the row before the money is out of your hand, not later that evening.
- Where you genuinely could not write it at the moment, write it the same day and tick the estimated box.
- Write the decider as a role - me, the purse holder, another member of the household, the shop owner - and never as a name.
- Write a zero on a day nothing left the purse, so that day exists in the count.
- Each night put the day's card in the dated envelope and write one line on anything missed or reconstructed.

WRITE THIS DOWN

One row per outflow with amount, category, decider role, purpose and time, plus fourteen nightly failure-log lines.

DONE WHEN

Fourteen dated cards sit in the envelope, including the days with nothing on them, and no row has a blank amount.

Watch out. Leaving the small ones out. Tea, a bus fare, a top-up and a packet of biscuits are exactly where the invisible weekly total hides, so log every amount, down to single rupees.

5

Total by category 60 MINUTES**Total the fortnight by category, then open the sealed envelope and measure the gap.**

- Add each category across the fourteen cards longhand, twice, and accept a total only when the two runs agree.
- Divide every category total by two for rupees per week, leaving the working visible on the page.
- Only now cut open the sealed envelope, in front of the purse holder, and write the guessed figure beside the actual figure for every category.
- Draw the bars on squared paper to a stated scale: guessed bar and actual bar side by side for each category, largest gap first.
- Optional, and only if you want it: mark each of your own outflows N for needed, C for chosen or X for neither, and write one line on whether anything carried interest or a late fee. This is your own reflection on your own spending, never a verdict on anybody else's.

WRITE THIS DOWN

Rupees per week per category, the guess beside it, the gap per category, and the name of the category carrying the largest gap.

DONE WHEN

You can say one sentence aloud: we thought X rupees a week went on this category and it was actually Y.

Watch out. Reporting only the biggest category. The finding is the biggest gap, not the biggest total - the category everybody already knew about is not news.

Act 2 – fix it and measure steps 6 to 10, ending with a proven effect

6

Name the cost 50 MINUTES**Finish the costed problem statement on one page and choose the single change you will make.**

- Write four lines: whose purse this is, total rupees out per week, the category with the largest gap between believed and actual, and what that gap comes to per year at this rate.
- Draw the paired guessed-against-actual bars on squared paper with the scale stated and the finding as the title.
- List three candidate changes - a written limit on one category, a separate envelope for one category, one category written up where everybody can see it daily, or one habit dropped - with the rupees each might save.
- Choose one and write: for fourteen days I will change X and expect this category to fall from A to B rupees per week.
- Read the page aloud to the purse holder and have them sign and date it where they agree to the change.

WRITE THIS DOWN

The one-page costed problem statement, the three candidate changes with predicted savings, and the chosen change as one testable sentence.

DONE WHEN

Somebody who was not there reads the page once and repeats your gap figure back correctly.

Watch out. Choosing the change that saves most on paper but nobody will keep. A change abandoned on day three measures nothing - choose the one that survives fourteen days.

7

Write the rules 40 MINUTES**Write the protocol that keeps the second fortnight measurable against the first.**

- Write what stays fixed: the same purse, the same categories, the same card, the same at-the-moment rule, the same fourteen days.
- Write what is allowed to move: only the one change you named in step six.
- Write the change on a card as an instruction somebody could follow without you in the room, and pin it where the purse lives.
- Rule and date fourteen fresh blank cards before any data exists, and put them with the pen.
- Write your prediction on the page, date it, and have one person witness it with a signature.

WRITE THIS DOWN

The protocol as a numbered list, the change written as an instruction, the fourteen dated cards, and the witnessed prediction.

DONE WHEN

Fourteen empty dated cards are ready and a signed prediction exists that predates the data.

Watch out. Renaming the categories between fortnights because the first set annoyed you. Fix them now; one category renamed halfway makes the two fortnights uncomparable.

8

Log week one 10 MINUTES A DAY FOR SEVEN DAYS**Run the change and log the first seven days exactly as you logged the baseline.**

- Write every outflow on the day's card, at the moment it happens, using the same five columns.
- Total these seven days by category and compare them against the matching seven days of the baseline rather than against the whole fortnight.
- Write down every occasion the change was not kept, and why, without softening it.
- Ask the purse holder once, on day seven, whether the change is annoying, and write the answer word for word.
- Do not alter the change mid-week; where it turns out to be unworkable, write that down and keep logging.

WRITE THIS DOWN

Seven dated cards, the seven-day category totals, and a dated failure entry for every day the change slipped.

DONE WHEN

Seven consecutive dated cards sit in the second envelope and the failure log holds at least one honest entry.

Watch out. Quietly loosening the change when it starts to pinch. Log the slip - a change kept nine days out of fourteen is a real result, and a change you pretend was kept is not.

9

Days eight to fourteen 10 MINUTES A DAY FOR SEVEN DAYS, PLUS 45 MINUTES**Finish the second fortnight and compare the two fortnights honestly.**

- Log the remaining seven days with nothing altered.
- Total the second fortnight by category longhand, twice, and divide by two for rupees per week.
- Draw the paired bars on squared paper to the same scale you used before: before and after for each category, largest change first.
- List every confounder you can name: a wedding, a festival, a price rise, a guest, an illness, a different pay date, and the fact that logging money tends to reduce it on its own.
- Write the change in rupees per week and as a percentage, and say plainly whether twenty-eight days is enough to be sure.

WRITE THIS DOWN

The paired before-and-after bars, the difference in rupees per week and per year, and the named confounder list.

DONE WHEN

You can state the before figure, the after figure, and at least two reasons the difference might not be your doing.

Watch out. Reporting the good week and burying the other. Report both weeks, including the one that went backwards - a well-measured failure outscores an unmeasured success.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record what the purse holder will keep.**

- Deliver the defence aloud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Read every page for card numbers, account numbers, anybody's income, and the shop's name where a shop was involved, and cross all of it out before the pages leave your hand.
- Read the one-page explainer to three people this purse actually pays for, and write down what each of them said.
- Hand or post the bar chart to the expert you interviewed with one question: what would you have categorised differently.
- Complete the relations ledger with ten names, roles, dates and what each person replied.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, nothing identifying survives on the shared pages, and the purse holder has said on record whether the change stays.

Watch out. Passing round the daily cards. The cards are evidence for the assessor, not for the street - show the category totals and keep the cards in the envelope.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card naming the purse, the fourteen days and the category list, and the question: how many rupees a week leave this purse, and where is the gap between belief and reality largest.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for a shopkeeper, accountant, teller or microfinance officer, your category totals attached as one page carrying no names or account numbers, the date of the request, and the reply word for word.

3 - RESEARCH - WEEK 4**Evidence log**

Every outflow with its date, time, amount, category and decider role, the sealed day-one guess with its timestamp, and a tick against every reconstructed amount. No card or account numbers, no income figures.

4 - PROCESS - WEEK 5**Failure log**

The outflows you caught late, the days the change was not kept, any category you renamed, the week a festival broke the pattern, and what each did to the comparison, all dated.

5 - DESIGN - WEEK 5**The build**

The logging system itself: the form and linked sheet, or the daily card and the envelope, with the category list and the paired before-and-after chart of rupees per week per category.

6 - DESIGN - WEEK 5**One-page explainer**

One page read in ninety seconds: the purse, the weekly total, the guessed figure beside the actual one, the single change, the fortnight result, and what twenty-eight days cannot tell anybody.

7 - BRANDING - WEEK 5**Identity card**

A name and a one-line promise for the log, so the household or the shop can refer to it by name, plus the single sentence you want repeated at somebody else's table.

8 - OUTREACH - WEEK 6**Relations ledger**

Ten names with dates and replies: one shopkeeper, accountant, teller or microfinance officer, three people this purse pays for, three peers who checked your arithmetic, and three people you sent the chart to who answered.

9 - DEFENCE - WEEK 6**Defence video**

Under three minutes on camera: the purse without naming anybody, the weekly total, the largest gap, the single change, the fortnight result, and the limits you accept without argument. No account details on screen.

The four tiers, in this project

Starter

You log every outflow from one purse for fourteen days without a gap, total it by category, open the sealed guess, and put your questions to one stranger who handles money for a living.

Practitioner

You choose and defend your own category list, cite any borrowed budgeting method to its source, and produce one chart a stranger reads correctly without you explaining what the two bars mean.

Researcher

You write the categories and the recording rule before day one, justify fourteen days rather than seven, and quantify how much of the outflow you probably missed and which way that biases the gap.

Contributor

You set your gap against published work on how far people misjudge their own spending, defend your categories to an accountant who disagrees, and publish the anonymised totals openly so anybody can recompute them.

The one expert you must talk to

Who. A shopkeeper who keeps a daily cash book, an accountant or bookkeeper, a bank teller, or a microfinance loan officer - anybody who sees where other people's money actually goes and has to sort it into categories for a living.

Where to find one. Go to a shop that has been on the same street for years and ask in the quiet hour after opening. Microfinance branch offices sit in most towns and a loan officer will usually answer two questions at the counter. Search LinkedIn for 'accountant' or 'bookkeeper' plus your city. A college commerce department will name a lecturer who has done real books, and any bank branch has a teller between customers mid-morning.

SEND EXACTLY THIS

Hello, my name is [name]. I logged every rupee leaving one purse for fourteen days, and the total came out very different from what we thought we spent. I would like to know whether my categories are the ones you would use. Could you spare fifteen minutes this week? I will send five questions first.

Ask them

1. When you write down a day's spending, which categories do you actually use, and why those ones?
2. How far out are people usually when they guess their own weekly spending, and in which direction?
3. Which kind of spending do people forget to record most often, in your experience?
4. What is the simplest record-keeping change you have seen actually stick for more than a month?
5. If you had my fourteen days of rows, what one column would you have asked me to record that I did not?

You will be asked, without warning

1. Would that fall in weekly spending have happened anyway without your change, and how do you know?
2. Logging money tends to reduce it on its own. How much of your Act 2 result is the change and how much is simply being watched?
3. You logged twenty-eight days. Which weeks of the year would have given you a completely different answer, and why?
4. Your category list decided your finding. Show me two outflows that could honestly have gone in either of two categories, and tell me what that does to your gap figure.

If you get stuck

- If nobody replies to your interview requests - then stop writing and go to a shop that has stood on the same street for years, at the quiet hour, and ask the person behind the counter two questions while they work.
- If your before and after look the same - then report that as the finding, check the daily rows to see whether the change was actually kept on all fourteen days, and look for the category that grew while your target category shrank.
- If you could not catch every outflow - then log one category completely rather than all of them badly, state on every chart that the figure covers that category only, and mark every reconstructed amount as estimated.
- If you run out of time - then keep both fortnights at fourteen days and drop the optional needed-and-chosen columns rather than the log, writing on the page what you dropped and why.

Finished early?

Run the same fourteen-day log on a second purse in a different household and set the two category charts side by side, per week, with no names on either.

The Rule Nobody Follows

Count how often one real rule near you is actually kept, then find out who pays for the breaking.

THE QUESTION

How often is one real rule in a place you already belong actually followed, and who carries the cost, in minutes or rupees, when it is not?

A rule that most people break is not a small annoyance; it is a cost quietly moved onto whoever is least able to refuse it. Regulators, compliance teams, councils, unions and housing committees all live on the same two moves you make here: count how often a rule is actually followed, then find out who pays when it is not. Writing a rule that the people bound by it agreed to, can appeal against and can change is the whole difference between governance and an instruction nobody obeys, and that difference is paid work everywhere from a market committee to a national regulator.

ACT 1 - FIND

You pick one real rule in a place you already belong - a household, a shared room, a street, a sports ground, a bus queue - that most people break, and you count it: ten observation sessions across two weeks, always at the same time, in the same place, for the same fixed length, every instance tallied as followed or not followed. You then ask at least five people whom the breaking affects what it costs them in minutes, rupees, safety or fairness, and turn those answers into a figure per week.

A one-page costed problem statement carrying four lines: the rule written as an observable event, the compliance rate as a percentage with the number of instances behind it, who carries the cost of the breaking, and what that cost comes to per week. Beside it sits a bar chart of compliance per session and one line quoting, without naming anybody, what the people who pay actually said.

ACT 2 - FIX

You draft a changed rule, put it to everybody it affects, and rewrite it until they agree - the signed sheet carries the rule, the way to change it, the way to appeal a decision under it, and the plain statement that anybody may leave the group at any time. You then count compliance for two more weeks under the identical method: same sessions, same times, same place, same length, same tally sheet, same counter.

The signed rule sheet, ten more sessions counted identically, the two compliance rates side by side as a bar chart with the instance count on each bar, the change in percentage points, the weekly cost recalculated, and a named list of confounders. Where the group refused the new rule, that refusal, its reasons and what it says about the original rule stand as the result and are written up as one.

YOU MEASURE

compliance rate for one rule, as a percentage of observed instances

BEFORE

Ten observation sessions across two weeks, each at the same time, in the same shared or public place, for the same fixed length, every instance tallied as followed or not followed by the same counter. The rate is instances followed divided by total instances, reported per session and as a two-week figure with the total instance count written beside it. Taken before anything is proposed to anybody.

AFTER

Ten more sessions across two weeks, same times, same place, same length, same tally sheet, same counter and the same definition of an instance, beginning the day after the new rule is signed, reported per session and as a two-week figure beside the first.

Safety and ethics - not optional

- You count in shared or public places only - a shared room, a corridor, a street, a queue, a ground. Never observe anybody in a private space: not through a window, not in a bedroom or a bathroom, not in a home you were not invited into, and never on a camera, a photograph or a recording of any kind.
- Observation is counting, not policing. You never confront, correct, warn or film a person breaking the rule, and you never wait somewhere in order to catch somebody. Where anybody asks what you are doing, tell them plainly, and stop counting if they ask you to.
- No named complaints, ever. Every note describes a situation and never a person - the bin was left out overnight, two people went ahead of the queue - not by name, not by description, not by relationship, not by where they sit. Anything already written that identifies somebody is crossed out before the page leaves your hand.
- The new rule may not punish, shame, exclude, fine or cost anybody money, and it may not name a single person. It must carry a way to change it, a way to appeal a decision under it, and the plain sentence that anybody may leave the group at any time. Where everybody affected does not agree to it, it is not written into force: the refusal is the result and you write it up as one.

WHAT YOU USE - NO-TECH ROUTE

A clipboard and twenty identical tally sheets, each ruled into two columns headed followed and not followed, with date, place, start time and session length written at the top

A pen, and a spare, because a session missed for want of a pen cannot be repeated

A watch or clock with a second hand, or any household timer, so every session is exactly the same length

One page for the rule sheet carrying the rule, the way to change it, the way to appeal, the right to leave, and a signature and date line for every person affected

Squared paper and a ruler for the per-session bars and the paired before-and-after bars, drawn to a stated scale

An envelope, dated, holding the used tally sheets so anybody can recount your totals

A clipboard, a ruled tally sheet and a watch produce the identical compliance rate; the rule sheet is one page passed round for objections and then for signatures, and the bars are drawn on squared paper to a stated scale.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Find the rule 40 MINUTES

Pick one real rule in a place you already belong that most people break, and write it as something a stranger could observe.

- List five rules you already live under: at home, in a shared room, on your street, at a ground, in a queue.
- Cross out any rule you cannot watch from a shared or public place, and any that would mean watching one particular person.
- Write the survivor at the top of a fresh page in one sentence: the rule is X, one instance is Y, and an instance counts as followed when Z.
- Find out whether it is written anywhere, and copy the written version onto the page; where it exists only as something people say, write down who says it and when it started, as far as anybody can tell.
- Ask three people who live under it whether they knew it existed, and write down all three answers.

WRITE THIS DOWN

The rule in one sentence, the definition of one instance, whether it is written down anywhere, and three people's answers on whether they knew of it.

DONE WHEN

Somebody who has never been to the place reads your sentence and says correctly whether a described instance followed the rule.

Watch out. Choosing a rule about one person you find annoying. That is a complaint, not a rule - pick something that happens many times a day to many people.

2

Define the count 45 MINUTES

Fix the time, the place, the session length and the counting rule, then run one pilot session.

- Choose one fixed time of day and one fixed shared or public place where instances happen often enough to count.
- Choose a fixed session length between ten and thirty minutes and write it down; every session from now on is exactly that long.
- Rule twenty tally sheets in advance, each headed with the place, the session length and a blank date, two columns only: followed, not followed.
- Run one pilot session with a watch, and write 'pilot' across that sheet so it never enters the ten.
- Write the edge cases the pilot exposed - an instance half-done, two at once, one you could not see clearly - and fix the answer to each before session one.

WRITE THIS DOWN

The fixed time, place and session length, the edge-case rules, and the pilot sheet marked as a pilot.

DONE WHEN

The pilot sheet exists, the edge-case rules are written, and ten blank headed sheets sit on the clipboard.

Watch out. Counting for as long as it stays interesting. Sessions of unequal length cannot be compared, so watch the clock and stop when the time is up.

3

Count ten sessions 20 MINUTES A DAY ACROSS TWO WEEKS

Run ten identical observation sessions and tally every instance.

- Turn up at the same time and the same place for every session, and start counting when the watch says so, not before.
- Mark one stroke in followed or not followed for every instance, and nothing else - no names, no descriptions, no sketches of people.
- Total both columns at the foot of the sheet before you leave, and work out the rate longhand in the margin.
- Where a session could not happen, write the date and the reason in the failure log rather than moving that session to another time.
- Where anybody asks what you are doing, say plainly that you are counting how often a rule is followed for a project, and stop if they ask you to.

WRITE THIS DOWN

Ten sheets with date, start time, both totals and the rate, plus a failure-log line for every session that went wrong.

DONE WHEN

Ten sheets of identical length sit in the envelope, each with a total instance count beside its rate, and no sheet identifies a person.

Watch out. Counting harder on the days you expect breaking. The count has to be blind to what you hope for, so keep the time, the place and the length fixed even when it is dull.

4

Ask who pays 60 MINUTES**Find out who carries the cost of the breaking, and in what.**

- List everybody the breaking affects: whoever clears up, whoever waits, whoever pays, whoever is made less safe.
- Write five questions on a card - minutes lost, rupees spent, something made less safe, something made less fair, and one line in their own words - and take no names.
- Ask at least five of them face to face and write each answer on its own slip, numbered rather than named.
- Where the cost is minutes, time it yourself once with a watch rather than trusting the estimate.
- Write down anybody who says it costs them nothing, because that answer matters as much as the rest.

WRITE THIS DOWN

Five or more numbered answers giving the cost in minutes, rupees or a stated harm, and at least one cost you timed yourself.

DONE WHEN

You can name who pays for the breaking without naming a person, and there is a figure or a timed measurement behind it.

Watch out. Asking only the people who complain. Ask the people who break the rule what it costs them to follow it, or your changed rule will fail for a reason you never saw coming.

5

Price the breaking 45 MINUTES**Turn the compliance rate and the answers into a cost per week.**

- Multiply instances not followed per session by the number of sessions in a week, longhand, to get instances not followed per week.
- Multiply that by the minutes or the rupees one instance costs, taken from the slips and from your own timing, leaving the working visible.
- Where the cost is safety or fairness rather than money, write it as a count of instances plus one sentence in the words the affected people used, and do not invent a rupee figure for it.
- Draw the per-session compliance bars on squared paper to a stated scale, with the two-week rate ruled across as a line.
- Write the limits: how many instances you saw in total, how many you might have missed, and what a different hour of the day would probably have shown.

WRITE THIS DOWN

Instances not followed per week, the cost per week in minutes or rupees, the per-session compliance bars, and the stated limits.

DONE WHEN

You can say one sentence aloud: the rule is followed X per cent of the time, and the breaking costs whoever pays Y a week.

Watch out. Putting a rupee figure on unfairness because a number looks stronger. Count what you counted, and say in words what you could not.

6 Name the cost 60 MINUTES

Finish the costed problem statement and draft the changed rule everybody will be asked to agree to.

- Write four lines: the rule, the compliance rate with the instance count behind it, who carries the cost, and the cost per week.
- List three candidate changes - make the rule easier to follow, move where or when it applies, change what it asks for, or drop it because nobody ever consented to it - with what each would need from whom.
- Draft the changed rule on one page: the rule, why it exists, how to change it, how to appeal a decision under it, and the sentence that anybody may leave this group at any time.
- Check the draft against the hard line: it may not punish, shame, exclude, fine or cost anybody money, and it may not name a person. Rewrite anything that does.
- Write the prediction at the foot of the page and date it: compliance will move from A per cent to B per cent across two weeks.

WRITE THIS DOWN

The one-page costed problem statement, the three candidate changes, the drafted rule sheet, and the dated prediction.

DONE WHEN

Somebody who was not there reads the page once and repeats your compliance rate and the weekly cost back correctly, and the draft breaks none of the four bans.

Watch out. Writing the rule you want rather than the rule people will agree to. A rule imposed is obeyed for two weeks and ignored for ever after.

7 Agree the rule 50 MINUTES

Put the draft to everybody it affects, rewrite it until they agree, and get it signed.

- Read the draft aloud to everybody affected, in one sitting where you can, and ask each of them for one objection.
- Write every objection on the back of the page, then rewrite the rule to answer at least one of them and read the new version aloud.
- Copy the final version out cleanly with a signature and date line for each person, and record how many declined as a number, without naming any of them and without pressing anybody for a reason.
- Say aloud, and write on the sheet, that anybody may ask to change it, may appeal a decision under it, and may leave the group at any time.
- Pin the signed sheet where the rule applies and keep the drafts, objections and all, in the envelope.

WRITE THIS DOWN

The signed rule sheet, the objections written on the back of the draft and what each one changed, and the number of people who declined.

DONE WHEN

Everybody affected has either signed or declined on the record, and at least one objection visibly changed the wording.

Watch out. Counting silence as agreement. Somebody who did not answer has not consented, and where the group as a whole refuses, that refusal is your finding and you write it up as one rather than coming back with a softer version.

8

Count week one 20 MINUTES A DAY ACROSS ONE WEEK**Run five sessions under the new rule, changing nothing about how you count.**

- Keep the same time, the same place, the same session length, the same headed sheets and the same counter.
- Count five sessions and total both columns at the foot of each sheet before you leave.
- Write down every occasion the rule was not kept as a situation, never as a person.
- Ask two people on day seven whether the new rule is workable, and write their answers word for word without naming them.
- Do not remind anybody of the rule during a session; a count you influenced is not a count.

WRITE THIS DOWN

Five sheets with both totals and the rate, plus a dated failure entry for every session that did not go to plan.

DONE WHEN

Five identical sheets sit in the second envelope and the failure log holds at least one honest entry.

Watch out. Standing somewhere new so people notice you counting. Stand where you stood in the baseline, doing exactly what you did then, or the two fortnights are not comparable.

9

Count week two 20 MINUTES A DAY ACROSS ONE WEEK, PLUS 45 MINUTES**Finish the ten sessions and compare the two fortnights honestly.**

- Run the last five sessions with nothing altered.
- Add the ten sheets, work out the second fortnight's rate longhand, and set it beside the first in percentage points with the instance count behind each.
- Draw the two rates as a pair of bars on squared paper to a stated scale, writing the instance count on each bar.
- Recalculate the cost per week at the new rate and write the difference in minutes or rupees.
- List every confounder: a holiday, an examination week, the weather, a new person in the group, the fact that people knew they were being counted, and the fact that you asked them to sign something.

WRITE THIS DOWN

The paired before-and-after bars, the change in percentage points, the recalculated weekly cost, and the named confounder list.

DONE WHEN

You can state the before rate, the after rate, the instance count behind both, and at least two reasons the difference might not be your doing.

Watch out. Reporting a rate without its denominator. Eighty per cent of five instances and eighty per cent of two hundred are not the same finding, so put the instance count on every bar.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to the people it affects, and record what happens to the rule now.**

- Deliver the defence aloud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Read every page for anything that identifies a person and cross it out before the pages leave your hand.
- Read the one-page explainer to three people the breaking costs, and write down what each of them said.
- Hand or post the bar chart to the expert you interviewed with one question: what would you have written into the rule that I did not.
- Ask the group in front of a witness whether the rule stays, changes again or ends, and write the answer down word for word.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, the group's recorded decision on the rule, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, nothing identifying a person survives on the shared pages, and the group has said on record what happens to the rule.

Watch out. Calling it a success because the rate went up. Say who still pays at the new rate, and by how much, before you say anything else.

Your nine deliverables in this project

1 - RESEARCH - WEEK 2

Question card

One card naming the rule, the place, the fixed session time and length, and the question: what share of instances actually follow this rule, and who carries the cost of the ones that do not.

3 - RESEARCH - WEEK 4

Evidence log

Twenty dated tally sheets or rows with start times, session lengths and both counts, the cost answers numbered rather than named, the timed cost you measured yourself, and the signed rule sheet with its objections.

5 - DESIGN - WEEK 5

The build

The signed rule sheet itself: the rule, the reason, how to change it, how to appeal, the right to leave, and the signatures, plus the paired before-and-after compliance chart with instance counts.

7 - BRANDING - WEEK 5

Identity card

A name and a one-line promise for the rule sheet, so the group refers to it by name rather than by whose idea it was, plus the sentence you want repeated afterwards.

9 - DEFENCE - WEEK 6

Defence video

Under three minutes on camera: the rule, the baseline rate and its instance count, who paid and how much, the agreed change, the after rate, and the limits you accept. Nobody identifiable on screen.

2 - OUTREACH - WEEK 3

Expert interview pack

Five written questions for a lawyer, councillor, school administrator, union representative or community organiser, your compliance rate attached as one page, the date and channel of the request, and the reply written word for word.

4 - PROCESS - WEEK 5

Failure log

The sessions that did not happen and why, the instances you could not judge, the day the definition was tightened, anybody who asked you to stop counting, and what each did to the rate, dated.

6 - DESIGN - WEEK 5

One-page explainer

One page read in ninety seconds: the rule, the baseline compliance rate, who pays and how much per week, the agreed change, the two-week result, and what ten sessions cannot tell anybody.

8 - OUTREACH - WEEK 6

Relations ledger

Ten names with dates and replies: one lawyer, councillor, administrator or organiser, three people the breaking costs, three peers who checked your counting method, and three people you sent the chart to who replied.

The four tiers, in this project

Starter

You define one rule as an observable event, count ten identical sessions, ask five affected people what the breaking costs them, produce a compliance chart, and question one stranger who writes rules for a living.

Researcher

You write the definition of an instance and the counting rule before session one, justify ten sessions rather than three, and quantify how many instances you probably missed and which way that biases the rate.

Practitioner

You choose your own observation window and defend the choice, cite any borrowed tally or survey method to its source, and produce one chart a stranger reads correctly without you explaining what an instance is.

Contributor

You set your compliance figure against published work on rule compliance and consent, defend your method to a lawyer or councillor who disagrees, and publish the anonymised tally sheets openly so anybody can recount them.

The one expert you must talk to

Who. A lawyer, a union representative, an elected councillor or union-council member, a school administrator who writes and enforces rules, or a community organiser who has got neighbours to agree to something - anybody whose work is making rules that people actually follow.

Where to find one. District and union-council offices hold public hours; ask at the desk for whoever handles local complaints. Bar associations publish member lists, and most lawyers will answer one short, specific question. A school administrator is usually reachable through the school office in the first hour of the day. Search LinkedIn for 'community organiser' or 'compliance officer' plus your city, and any housing-society or market-committee secretary has spent years enforcing rules with no power to punish.

SEND EXACTLY THIS

Hello, my name is [name]. I counted how often one rule near me is actually followed, and the rate is far lower than anyone expected. I now have to draft a version people will agree to. Could you spare fifteen minutes this week to tell me what makes a rule stick? I will send five questions first.

Ask them

1. When you write a rule, how do you decide who counts as affected and therefore gets a say in it?
2. What makes people follow a rule they did not want, and what makes them ignore one they did?
3. How do you build a way to appeal into a small rule without turning it into a court?
4. What do you do when the people bound by a rule refuse to agree to it?
5. If you had my ten sessions of counts, what would you have measured that I did not?

You will be asked, without warning

1. Would compliance have risen anyway without your change, and how do you know?
2. You counted at one hour of the day in one place. What would a different hour have shown, and why should I believe your rate?
3. Whose consent did you not get, and what does that do to the legitimacy of the rule you wrote?
4. Your new rule carries no punishment. Tell me why it worked, or why it did not, without using the word discipline.

If you get stuck

- If nobody replies to your interview requests - then stop writing and go to your union-council or district office during its public hours and ask whoever is at the desk two questions about a rule they have to enforce.
- If your before and after look the same - then report that as the finding, check whether everybody affected actually knew the new rule existed, and count how many of the signatures belong to people who are ever present during a session.
- If you cannot count the instances - then narrow the definition to a version you can see clearly from one fixed spot, shorten the session, and state the definition and the session length on every chart.
- If you run out of time - then keep both halves at the same number of sessions and cut the cost survey to three answers rather than five, writing on the page what you shortened and why.

Finished early?

Count the same rule in a second place with a different group, using the identical definition and session length, and set the two compliance rates side by side with both instance counts shown.

The Lie This Street Believes

Ask twenty people whether the claim your street forwards every week is true, then count how many say yes.

THE QUESTION

Which false claim is circulating hardest in your own family and neighbourhood groups, how many out of twenty people believe it, and what has believing it already cost them?

Every platform, newsroom, hospital and election office now pays people to decide whether a claim is true and to publish the working behind that decision. Verification is a trade with a method: trace the earliest version, check three sources that did not copy one another, record exactly how each was checked, and measure who believes the claim and what they did about it. Machine-made voices, faces and video are making that method more valuable rather than less, because the cheap part is now producing the lie and the expensive part is proving it.

ACT 1 - FIND

You log every forwarded message, voice note, image and clip reaching your family and neighbourhood groups for seven days, then take the single claim that appears most often and test it against three independent sources, writing down exactly how each check was done. You then ask twenty people the identical, neutrally worded question and record how many say the claim is true, and what believing it has already cost them in money, in treatment avoided, or in somebody blamed.

A one-page costed problem statement carrying four lines: the claim in the words people actually use, the verdict with its three checks and their dates, the percentage of twenty people who say it is true, and what it has cost them. Beside it sits a bar chart of believe, do not believe and not sure, with the refusal count printed underneath.

ACT 2 - FIX

You build a correction of sixty seconds or less - a voice note, a card or a short video - in the same format and the same language the claim travels in, and share it with the same groups and the same twenty people. Seven days later you ask the identical question, in identical words, to the same twenty and compare.

A two-bar chart of the percentage who say the claim is true, before against after, with the change stated both in percentage points and in whole people, the number who saw the correction, the number you could not reach, and a named list of every reason the change might not be yours.

YOU MEASURE

percentage of twenty people who say the claim is true

BEFORE

The same neutrally worded question, read word for word from the page, put to each of twenty people separately before any correction exists, with each answer recorded as true, false or not sure against a code number, and every refusal counted in its own column.

AFTER

The identical wording, read from the same page, put to the same twenty coded people seven days after the correction was shared, with anyone who cannot be reached recorded as unreachable rather than assumed unchanged.

Safety and ethics - not optional

- Never name the person who sent a message, and never screenshot a private chat with a name, a number or a profile picture visible. Type the claim out in your own words and give every group a code letter instead of its name.
- Never test a claim about religion, politics, a sect, an ethnic group or a named person. Choose a practical, local claim instead: a remedy, a price rumour, a scam, a claim about a school, a water supply or an electricity bill.
- Never accuse anybody of lying. The message is wrong; the person who forwarded it is not attacked, not named and not corrected in public. Never publish anyone's belief with their name attached - beliefs live against code numbers only.
- The correction is polite, sourced and short. If a group turns hostile, stop posting there at once, do not argue back, leave, and write down what was said and what you did. That write-up is a finding and it is marked as one.

WHAT YOU USE - NO-TECH ROUTE

A notebook ruled into five columns with a pen and a ruler: date, group code, format, the claim in one sentence, times heard

A card with the question written out once, read word for word at every asking so the wording never drifts

Twenty numbered slips of paper, one per person, so an answer is recorded against a number and never against a name

A printed source you can hold in your hand: a medicine leaflet, a published tariff sheet, a public notice, a newspaper cutting

Squared paper for the belief chart and the before-and-after chart, drawn to a stated scale

Plain cards and a pen for the correction, copied by hand or at a photocopy shop

The claim travels by mouth as well as by phone, so this route logs what people repeat out loud, checks it against a printed source you can hold and a person with direct authority, and delivers the sixty seconds face to face with a hand-copied card.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1

Collect what circulates 45 MINUTES SPREAD OVER SEVEN DAYS

Log every claim you hear repeated for seven days, in conversation, at the shop, at the gate, and every message read aloud to you.

- Rule five columns across a fresh page: date, group code, format, the claim in one sentence, times heard.
- Give every group and every gathering a code letter, and write no name, no house and no telephone number anywhere on the page.
- Write each claim in your own words in one sentence, and mark how it arrived - said aloud, read aloud from a phone, a picture shown to you, a card handed over.
- When the same claim comes round again, add a stroke to the times-heard tally rather than starting a new row.
- Carry the notebook with you and write it down the same hour you hear it, because a claim recalled at night has already changed shape.

WRITE THIS DOWN

One ruled row per distinct claim, with dates, format, group code and a tally of times heard across the full seven days.

DONE WHEN

Seven days are logged, every group is a letter, and nobody on the page could be identified by a stranger reading it.

Watch out. Writing down who said it. The sender is not part of the data and never becomes part of it - the claim is what you are counting.

2

Pick one claim 40 MINUTES

Choose the single claim heard most often and write it as one sentence that can be shown true or false.

- Count the tallies, list the top five on a clean page, and read them aloud.
- Cross out anything about religion, politics, a sect, an ethnic group or a named person, and write 'out of bounds' beside each.
- From the rest, take the most practical and local: a remedy, a price, a scam, a claim about a school, a water supply or an electricity bill.
- Rewrite it with no hedging, in the words people actually use, so evidence can settle it either way.
- Write one line on what somebody would do, spend or avoid if they believed it.

WRITE THIS DOWN

The chosen claim as one testable sentence, the four rejected claims, and the reason beside each rejection.

DONE WHEN

Somebody reading your sentence can tell you what evidence would prove it wrong.

Watch out. Choosing the claim that annoys you most rather than the one that spreads most. The tally decides, not your temper.

3

Check it three ways 2 HOURS

Test the claim against three sources that did not copy one another, and write down exactly how each check was done.

- Go to a person with direct authority - a pharmacist or a doctor for a remedy, the utility office for a bill claim, the school office for a school claim - and write their answer and the date at the doorway before you forget it.
- Get a printed source into your hand: a medicine leaflet, the published tariff sheet, a public notice, a newspaper cutting from a library, and copy the exact line and its date into the notebook.
- Trace the chain: ask the person who repeated it who they heard it from, then ask that person the same, until the chain stops, and write where it stopped.
- Rule a check table with four columns - source, what it says, how you checked it, date checked - and fill one row per check.
- If two of your three checks turn out to come from the same origin, say so and find a third that does not.

WRITE THIS DOWN

Three checks in full, each with a named person or a printed line, the method, the date, and the verdict: true, false or unproven.

DONE WHEN

Three independent checks exist and a stranger could walk your route and repeat any one of them from your notes alone.

Watch out. Accepting 'everybody knows' as a source. If you cannot point at a printed line or name the person who said it and when, it is not a check.

4

Ask the twenty 2 HOURS OVER THREE DAYS

Put the same neutrally worded question to twenty people and record what each of them believes.

- Write the question once on a card: 'Have you heard that [claim]? Do you think that is true, false, or are you not sure?' and read it from the card every single time.
- Practise it flat, with no tone, on two people first, and leave those two out of the count.
- Ask each of the twenty alone, and write the answer on a numbered slip - true, false or not sure - with no name on the slip.
- Keep a separate refusal tally, and thank anybody who declines without asking twice.
- Ask one follow-up only - 'where did you first hear it' - and write the reply in their own words on the same slip.

WRITE THIS DOWN

Twenty numbered slips, one answer each, a refusal tally, and the place each person said they first heard the claim.

DONE WHEN

Twenty answers exist, all given to identical wording read from the card, and no name appears on any slip.

Watch out. Improvising the question when you are tired. Read the card; a question asked three different ways produces three different surveys.

5

Count the cost 60 MINUTES**Find out what believing this claim has already cost the people who believe it.**

- Return to the slips marked true, find those people again, and ask what they did about it: bought, avoided, stopped a medicine, changed shop, warned a relative.
- Walk to the shop or the pharmacy counter and write down the real price of anything bought or avoided, rather than trusting a remembered figure.
- Write any harm that is not money in one line each with no names: a treatment delayed, a shop or a person blamed, an argument in the family.
- Add the costs, divide by the number who answered true, and write the total across the twenty with the words 'estimate from a small sample' beside it.
- Where a believer says it cost them nothing, write a zero rather than leaving the line blank.

WRITE THIS DOWN

What each believer did, the rupee cost where there is one, the harm that is not money where there is not, and the estimated cost across the twenty.

DONE WHEN

You can state one sentence of the form 'this many of twenty believe it, and between them it has cost this much'.

Watch out. Turning one dramatic story into a figure for the whole street. Report what you collected and say how many cases it was.

Act 2 – fix it and measure steps 6 to 10, ending with a proven effect

6

Name the cost 50 MINUTES**Finish the costed problem statement on one page and choose exactly what your sixty-second correction will be.**

- Write four lines: the claim in its own words, the verdict with its three checks, the percentage of twenty who say it is true, and what it has cost so far.
- Draw the belief chart on squared paper - believe, do not believe, not sure - to a stated scale, with the refusal count written underneath.
- Choose the format that reaches these people: sixty seconds said out loud face to face, a hand-copied card, or both together.
- Write the prediction: 'I will give a sixty-second correction to the same twenty people and expect belief to fall from A per cent to B per cent in seven days.'
- Read the page to one person who believed the claim, ask what would make them stop repeating it, and write the answer word for word.

WRITE THIS DOWN

The one-page costed problem statement, the drawn chart, the chosen format with its reason, and the dated prediction.

DONE WHEN

Somebody who was not there reads the page once and repeats your percentage back correctly.

Watch out. Choosing the format that is easiest for you. If the claim travels in conversation, a card left on a wall will never catch it.

7

Make the sixty seconds 90 MINUTES**Build a correction of sixty seconds or less that is polite, sourced, short and easy to repeat.**

- Write it in this order: what the message says, what is actually true, the one source that shows it, and what to do instead.
- Read it aloud against a watch with a second hand and cut words until it fits inside sixty seconds every time.
- Correct the message and never the sender: say 'this message is wrong', never 'whoever sent this is lying', and name nobody.
- Copy it onto plain cards by hand, or take one card to a photocopy shop, with the source written on the back of every copy.
- Say it to two people first - one who believed the claim, one who did not - and write down every word each of them changed.

WRITE THIS DOWN

The final script timed at sixty seconds or under, both reviewers' comments, and the card with its source line on the back.

DONE WHEN

It is said in sixty seconds or under, it carries one named source, and it names no person at all.

Watch out. Repeating the false claim loudly at the start so it is the part people remember. Say it once, plainly, then spend the rest on what is true.

8

Deliver it 90 MINUTES**Give the correction to the same people and the same gatherings the claim came from, and log where it went.**

- Say the sixty seconds face to face to each of the twenty, one at a time, and hand over a card afterwards.
- Deliver it once in each gathering it belongs in, with one polite sentence of your own and no accusation in it.
- Log the date, the group code, roughly how many people heard it, and anything said back, in a ruled table.
- Ask three people to pass the card on, and record whether they actually did.
- If any gathering turns hostile, stop at once, do not argue, leave, and write down what was said and what you did.

WRITE THIS DOWN

The delivery log with dates, group codes, numbers reached and replies, plus any hostility recorded in full with your own response.

DONE WHEN

All twenty have heard it, every gathering is logged, and any hostile response is written up rather than argued with.

Watch out. Standing your ground when a room turns. One polite sentence with the source, then leave; the argument you win costs you the re-asking in step nine.

9

Ask the same twenty again 90 MINUTES**Seven days later, put the identical question to the same twenty people and compare.**

- Wait a full seven days from delivery, and write the exact date beside each re-asking.
- Read the question from the same card, word for word, exactly as it was asked the first time.
- Ask 'did you hear the correction' only after they have answered, never before.
- Write each answer on the slip that already carries that person's number, so before and after sit on one slip.
- Draw two bars on squared paper for the percentage saying true, before and after, and write the change in percentage points and in whole people underneath.

WRITE THIS DOWN

The twenty after-answers on their numbered slips, the unreachable tally, both percentages, and the change in people as well as per cent.

DONE WHEN

Before and after exist on the same numbered slips, asked in identical words, and you can say how many people actually moved.

Watch out. Assuming that anybody you could not find has changed their mind. Count them as unreachable and show what your percentage becomes either way.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record honestly what the correction did and did not do.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Read the one-page explainer to three people the claim affected and write down what each of them said.
- Hand the before-and-after chart to the expert you interviewed with one question: what would you have checked that I did not.
- Write plainly whether the correction moved anybody, including if it moved nobody, and name every reason it might not have.
- Complete the relations ledger with ten entries - names for the expert, the peers and the people you shared with, numbers for anybody whose belief you recorded.

WRITE THIS DOWN

The defence signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships with dates and replies.

DONE WHEN

Ten relationships are logged with dates and replies, and the after-percentage is stated aloud whether it fell, held or rose.

Watch out. Reporting only the people who agreed with you afterwards. The tally of twenty is the result; the compliments are not.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card naming the claim in the words people use, the groups it circulates in as code letters, and the question: how many of twenty believe it, and what has it cost them.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for a journalist, fact-checker or pharmacist, your three checks attached as one page, the date and channel of the request, and the reply recorded word for word.

3 - RESEARCH - WEEK 4**Evidence log**

The seven-day tally of forwards, the check table with source, method and date for all three checks, and twenty coded belief answers before and after. No name sits beside any belief.

4 - PROCESS - WEEK 5**Failure log**

The check that led nowhere, the two sources that turned out to be one, the people you could not reach again, the group that turned hostile and what you did, all dated.

5 - DESIGN - WEEK 5**The build**

The sixty-second correction itself - voice note, card or short video with its source on the final frame - together with the two-bar chart of belief before and after.

6 - DESIGN - WEEK 5**One-page explainer**

One page a neighbour reads in ninety seconds: the claim, how it was checked three ways, the percentage who believed it, what it cost, the correction, and the after number.

7 - BRANDING - WEEK 5**Identity card**

A name and a one-line promise for the correction, so people can ask for it by name, plus the single sentence you want repeated when somebody forwards the claim again.

8 - OUTREACH - WEEK 6**Relations ledger**

Ten entries with dates and replies: one journalist or pharmacist, three people the claim affected, three peers who checked your checking, three people you sent the correction to who answered.

9 - DEFENCE - WEEK 6**Defence video**

Under three minutes on camera: the claim, the three checks and their dates, the before percentage, the correction, the after percentage, and the limits you accept without argument.

The four tiers, in this project

Starter

You log seven days of forwards, check the most repeated claim against three sources, ask twenty people the same fixed words, and put your questions to one journalist, fact-checker or pharmacist.

Practitioner

You choose the twenty yourself and defend who they are, cite every check to its page and its date, and make one chart a stranger reads correctly without you standing beside it.

Researcher

You fix the question wording and the checking method in writing before collecting anything, justify twenty rather than five, and quantify what refusals and unreachable people do to your percentage.

Contributor

You set your finding against published fact-checks of the same claim, defend your checking method to a working fact-checker who disagrees, and publish your coded data and every check openly.

The one expert you must talk to

Who. A journalist or a fact-checker who publishes verification work. If your claim is a remedy, a pharmacist or a doctor is the right person to ask. If it is a claim about how something works, a science teacher will take it apart with you.

Where to find one. Newspapers print a newsroom desk telephone number and an email on the masthead, and press clubs list working reporters. A pharmacy counter is open all day and the pharmacist has already heard your claim from somebody. A hospital's public-relations office will pass a request to a doctor. Search LinkedIn for 'fact-check' or 'verification' plus your city.

SEND EXACTLY THIS

Hello, my name is [name]. One claim is being forwarded around my family and neighbourhood groups every week. I checked it against three sources and then asked twenty people whether they believe it. Most said yes. Could you spare fifteen minutes this week to tell me what my checking missed? I will send five questions first.

Ask them

1. When a claim reaches you, what is the first check you run, and why that one before any other?
2. How do you decide that two sources are genuinely independent rather than quoting the same original post?
3. What do you do with a claim you cannot prove either way, and how do you publish that without helping it spread?
4. Which corrections have you seen actually change what people forward, and what did those have in common?
5. When a group turns hostile at being corrected, what do you do next, and what have you learnt not to do?

You will be asked, without warning

1. Would the belief have dropped anyway without your correction, and how do you know?
2. You called your three sources independent. Show me they do not all trace back to one original post.
3. Twenty people, and you chose them. Who did you leave out, and which way would including them push your percentage?
4. The same claim comes back next month in slightly different words. What did your sixty seconds actually achieve, in numbers?

If you get stuck

- If nobody will answer your question - then stand at a shop counter at a busy hour, ask the shopkeeper and the next four customers, and record every refusal as a refusal.
- If your before and after look the same - then report that as the finding, check first how many of the twenty actually saw the correction, and write that number beside the result.
- If you cannot check the claim properly - then record it as unproven rather than false, say plainly which check you could not complete, and correct only the part you can prove.
- If you run out of time - then re-ask ten of the twenty rather than dropping the baseline, and state the smaller after-sample on the chart itself.

Finished early?

Run the identical question on twenty people in a second neighbourhood that never saw your correction, and set the two after-percentages side by side.

The Trigger

Log one small habit of your own for fourteen days and find the cue you never knew was there.

THE QUESTION

How many times a day does one small habit of yours actually happen, and which single cue is present in most of those times?

Almost nobody can say how often they do the ordinary things they do, which is why behaviour is counted rather than remembered by anyone who works with it seriously. Behavioural researchers, product designers, safety engineers and policy teams all earn their living from the same two moves you make here: define one observable event, then log what reliably comes immediately before it. The value is not in the habit you pick; it is in the discipline of writing down an event within a minute of it happening for four straight weeks, and then reporting a comparison that may well go against you.

ACT 1 - FIND

You pick one small, harmless, everyday habit of your own and count it for fourteen consecutive days, writing down the time, the place, whether anyone else was present, and what happened in the minute immediately before. You then time a sample of occurrences with a stopwatch so the count can be turned into minutes.

A one-page costed problem statement carrying four lines: the habit defined as an observable event, occurrences per day averaged over fourteen days, minutes per day and hours per year that count represents, and the single cue present in the largest share of occurrences with that share written as a percentage. Beside it sits a bar chart of occurrences by cue, largest bar first, and a line of the daily count across all fourteen days.

ACT 2 - FIX

You remove or change exactly one thing - the single cue that showed up in most occurrences - and you leave the habit itself alone rather than trying to stop it by willpower. You then log fourteen more consecutive days with the identical definition, the identical log and the identical recording rule, so the only moving part is the cue.

A twenty-eight-day line of the daily count with the change day marked, the two fortnight means set side by side, the difference in occurrences per day and in minutes per week, a named list of confounders, and one honest paragraph on whether the cue moved the habit, moved it somewhere else, or did nothing.

YOU MEASURE

occurrences per day of one defined habit of your own

BEFORE

Fourteen consecutive days of logging every occurrence of one habit of your own, entered within a minute of it happening, each row carrying time, place, whether you were alone or with one other or with two or more people, and what happened in the minute before. Reported as a mean across the fourteen days with every daily count shown. Taken before any cue is touched.

AFTER

Fourteen more consecutive days logged with the same definition, the same log, the same within-a-minute rule and the same fourteen-day length, beginning the day after the cue is changed, reported as a mean with every daily count shown beside the first fortnight.

Safety and ethics - not optional

- You log your own habit and nobody else's. Not a family member's, not a friend's, not a classmate's, not even with their permission and not even if they offer. Anyone who happens to be present is recorded only as alone, one other person, or two or more people, and never by name, relationship or description.
- Choose something small and harmless: checking your phone, snoozing the alarm, opening a new browser tab, checking the front door is locked, picking up the remote, saying one filler word. This project does not touch food, eating, weight, appearance, sleep restriction, medication, self-harm, or any behaviour you feel bad or worried about. If a candidate habit is on that list, or you are not sure, pick a different one.
- If the logging itself starts to feel bad - if counting makes you tense, self-critical or unwilling to open the log - stop that day, pick a different habit, and write in the write-up what you stopped and why. That is a recorded finding and it is marked as one, not as a failure.
- No diagnosis language anywhere in this project. You are measuring the frequency of one event and one cue, nothing more. Do not describe yourself or anyone else as having a condition, do not use the word addiction, and do not offer advice to anybody about their own behaviour on the strength of twenty-eight days of your own data.

WHAT YOU USE - NO-TECH ROUTE

A folded index card or a small notebook that fits in a pocket, ruled into four columns: time, place, alone or one other or two or more, what happened in the minute before

A pen kept with the card, and a spare, because a logging system that depends on finding a pen fails on day three

A wall calendar or a ruled sheet for the daily totals, one box per day for twenty-eight days

A watch or clock with a second hand, or any household timer, for timing ten occurrences

Squared paper and a ruler for the twenty-eight-day line and the occurrences-by-cue bars

An envelope to keep the used cards in, dated, so every count can be recounted by somebody else

A folded card in your pocket and a pen produce the identical count; the card carries the same four columns the form would have asked for, and the counting and charting are done by hand at the end of each fortnight.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Choose the habit 40 MINUTES

Pick one small, harmless, everyday habit of your own and check it against the exclusion list before anything else.

- Write down five ordinary things you do without deciding to: checking the phone, snoozing the alarm, opening a new tab, checking the lock, picking up the remote, saying one filler word.
- Strike out anything touching food, eating, weight, appearance, sleep restriction, medication, self-harm, or anything you feel bad or worried about, and strike out anything that is somebody else's habit.
- From what survives, choose the one that happens often enough to count and matters little enough to log calmly, and write one sentence on why you chose it.
- Write the safety line at the top of the notebook: I log only my own habit, I name nobody, and if the logging feels bad I stop and change habit.
- Write and date your guess at how many times a day it happens, and have one person witness the guess with a signature.

WRITE THIS DOWN

The five candidates, the ones struck out and why, the habit chosen, and your dated witnessed guess at the daily count.

DONE WHEN

One habit is named, it survives the exclusion list in writing, and the guess is on the page before day one.

Watch out. Picking the habit you most want to be rid of. That one is loaded, it makes the logging feel like judgement, and judgement makes people log less. Pick a small dull one; the method is the point.

2

Define one occurrence 45 MINUTES

Turn the habit into an event so clearly defined that two people watching would count the same number.

- Write the definition as one sentence a stranger could apply, including where the occurrence starts and where it ends.
- Write the boundary rules that stop double counting: the minimum gap between two occurrences, and what happens if the habit is interrupted halfway.
- Rule a pocket card into four columns - time, place, alone or one other or two or more, what happened in the minute before - and make seven of them, one per day.
- Read the definition aloud to one person, describe three borderline events, and see whether they count them the way you do.
- Test the card for one hour on an ordinary afternoon and rewrite any rule that turned out to be ambiguous.

WRITE THIS DOWN

The one-sentence definition, the boundary rules, the ruled card design, and the corrections the one-hour test forced.

DONE WHEN

Somebody else can apply your definition to three described events without asking you a question, and seven ruled cards are ready.

Watch out. Defining the habit as a feeling rather than an event. An urge cannot be counted by anyone but you and cannot be checked by anybody. Define something a person standing in the room would see.

3

Log week one 10 MINUTES A DAY FOR SEVEN DAYS

Record every occurrence for seven consecutive days, within a minute of it happening.

- Keep the card and pen in the same pocket every day and mark the row the moment the occurrence ends, never at the end of the day from memory.
- In the fourth column write what physically happened in the minute before in five words or fewer: phone buzzed, walked into kitchen, finished a task, sat down, conversation stopped.
- Each night count the rows on the card, write the day's total in the calendar box, and add one line on how complete the day was.
- Mark any day you know you missed a run of occurrences as partial, rather than repairing it from memory.
- Put each finished card in the envelope with its date on it, and start a fresh card each morning.

WRITE THIS DOWN

One row per occurrence on the dated cards, seven daily totals in the calendar, and seven completeness lines.

DONE WHEN

Seven consecutive days have a total in the calendar, including any zeros, and seven dated cards sit in the envelope.

Watch out. Filling in the day on the walk home. Recall flattens counts badly and destroys the before-column entirely, because nobody remembers what happened in the minute before something they were not paying attention to.

4

Log week two 10 MINUTES A DAY FOR SEVEN DAYS PLUS 30 MINUTES**Log seven more days the same way and time a sample of occurrences so the count can be turned into minutes.**

- Keep the card design identical; if you must change a column, write the change on the card with its date and hour.
- On three of the seven days, use a watch or timer on the next ten occurrences that happen and write the seconds each one lasted on the back of the card.
- Add the ten timings and divide by ten longhand to get seconds per occurrence, writing the sample size beside it.
- Add the two weekend totals and compare them with the ten weekday totals in one written line.
- Check the calendar has fourteen filled boxes with no gaps, and write missing in any box that has no card behind it.

WRITE THIS DOWN

Fourteen daily totals, fourteen dated cards in the envelope, the timed sample with its mean and sample size, and the weekend against weekday line.

DONE WHEN

Fourteen consecutive daily totals exist and a measured seconds-per-occurrence figure sits on the page with its sample size.

Watch out. Timing only the long occurrences because they are easier to catch. Time the next ten that happen, whatever their length, and say plainly that the sample was ten consecutive events rather than ten chosen ones.

5

Find the cue 60 MINUTES**Count what came immediately before, and find the single cue present in most occurrences.**

- Lay the fourteen cards out and read every entry in the fourth column aloud, sorting them into no more than six named categories with the sorting rule written down.
- Tally each category with five-bar gates on a fresh sheet, add the tallies, and write each category's share of the total as a percentage.
- Tally place, hour of day, and whether you were alone or with others the same way, so you know which column actually separates the data.
- Draw the occurrences-by-cue bars on squared paper, largest bar first, to a stated scale, titled with the finding.
- Draw the fourteen daily totals as a line and write one sentence on whether the count drifted downwards simply because you were logging it.

WRITE THIS DOWN

The category rule, the tallies and percentages for cue, place, hour and company, the cue bar chart, and the fourteen-day line.

DONE WHEN

You can name one cue, state the percentage of occurrences it was present in, and pull out the cards that percentage came from.

Watch out. Naming a cue that is present in most occurrences and also present all day long. Being at home is not a cue if you are always at home. Ask whether the cue is also there during the hours the habit does not happen.

6 Name the cost 50 MINUTES

Finish the costed problem statement on one page and choose the one cue you will remove or change.

- Write four lines: the habit as defined, occurrences per day averaged over fourteen days, minutes per day and hours per year from your timed sample, and the top cue with its percentage.
- Copy the cue bar chart and the fourteen-day line onto the same page, with the timing sample size written underneath.
- List three ways the top cue could be removed or changed physically rather than by willpower: move an object, silence a notification, change a route, change what sits on a surface, change the order of two things.
- Choose one and write: 'For fourteen days I will change X and expect the daily count to fall from A to B.'
- Read your step-one guess back and write one line on how wrong it was.

WRITE THIS DOWN

The one-page costed problem statement, the three candidate cue changes, the chosen change as one testable sentence, and the guess-against-measurement line.

DONE WHEN

Somebody who was not there reads the page once and repeats your occurrences-per-day figure and your top cue back correctly.

Watch out. Choosing to try harder instead of changing a cue. Trying harder is not a change anybody can observe, cannot be repeated by a reader, and gives you nothing to report when the count moves.

7 Set the protocol 40 MINUTES

Write down what must stay identical across the second fortnight so the two halves can be compared at all.

- Write what is fixed: same definition, same boundary rules, same four card columns, same within-a-minute rule, same fourteen-day length.
- Write what is allowed to move: only the one cue named in step six.
- Make the cue change physically today and draw or describe on the page exactly what you moved, silenced or rearranged, with the time you did it.
- Rule fourteen fresh cards and fourteen calendar boxes before any data exists, and draw the change line on the calendar now.
- Write your prediction at the foot of the page, date it, and have one person witness it with a signature.

WRITE THIS DOWN

The protocol as a numbered list, the fourteen dates, the written description of the cue change with its time, and the witnessed dated prediction.

DONE WHEN

The cue is physically changed, the change is described on the page with its hour, and a signed prediction predates the second fortnight.

Watch out. Changing the cue and the definition at the same time, usually by tightening the definition because week two felt sloppy. Tighten nothing now. Anything you must change goes in the failure log with the date and hour.

8

Log fortnight two 10 MINUTES A DAY FOR SEVEN DAYS**Log the first seven days after the cue change exactly as you logged the baseline.**

- Mark the same four columns within a minute of every occurrence, using the same categories.
- Keep writing the fourth column even though you think you know the answer, because the interesting result is a new cue replacing the old one.
- Each night write one line on whether the cue change held, was partly held, or was undone, and why.
- If you undid the change on any day, log that day normally and write cue restored across the top of that card.
- Stop and write it down if the logging starts to feel bad; changing habit at this point is a recorded finding, not a failed project.

WRITE THIS DOWN

Seven dated cards, seven daily totals in the calendar, seven lines on whether the cue change held, and any cue-restored card marked.

DONE WHEN

Seven days carry totals with the same columns as the baseline, and the failure log holds at least one honest entry.

Watch out. Not logging on the days the count is high because it feels like the project is going wrong. A high day with its fourth column intact is worth more than a whole clean week without one.

9

Compare the fortnights 60 MINUTES**Log the last seven days, then set twenty-eight days side by side and report the difference honestly.**

- Finish days eight to fourteen, then add each fortnight's totals and divide by fourteen longhand to get the two means.
- Draw all twenty-eight daily totals as one line on squared paper to a stated scale, with a vertical mark on the change day.
- Tally the second fortnight's cues the same way and draw the second bar chart beside the first, to show whether the old cue vanished and something else took its place.
- List every confounder by name: exam weeks, travel, illness, a holiday, weather, a changed timetable, and the plain fact that you were watching yourself.
- Write the change as occurrences per day, as a percentage and as minutes per week, and add one sentence on whether fourteen days either side is enough to be sure.

WRITE THIS DOWN

The twenty-eight-day line with the change day marked, both means, both cue charts, the difference in occurrences and minutes, and the confounder list.

DONE WHEN

You can state the before mean, the after mean, and at least two reasons the difference might not be your doing.

Watch out. Claiming the cue change worked when the count was already falling through the first fortnight. Look at the shape of the twenty-eight-day line before you claim anything; a trend that started before the change is not your change.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record what you will keep.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone, naming nobody.
- Read the one-page explainer to three people and write down what each of them said, including anyone who did not believe the count.
- Hand or post the twenty-eight-day chart to the expert you interviewed with one question: what would you have recorded that I did not.
- Write one paragraph on whether you are keeping the cue change, and why, without turning it into advice for anybody else.
- Complete the relations ledger with ten names, roles, dates and what each person replied.

WRITE THIS DOWN

The defence signed and dated by its witnesses, the one-page explainer, the keep-or-drop paragraph, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, no other person's behaviour appears anywhere in what you shared, and no diagnosis language appears in any of it.

Watch out. Ending on a lesson about willpower. You measured one event, one cue and one physical change across twenty-eight days. Report those, report the limits, and stop there.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card carrying the habit written as an observable event with its boundary rules, the twenty-eight dates, your dated guess at the daily count, and the question: how often, and after what.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for a psychologist, counsellor, teacher or behavioural researcher, your fourteen-day count and cue chart attached as one page, the date and channel of the request, and the reply recorded word for word.

3 - RESEARCH - WEEK 4**Evidence log**

Every occurrence row with time, place, company as alone, one other, or two or more, and what happened in the minute before, plus the timed sample with its size and the nightly completeness lines.

4 - PROCESS - WEEK 5**Failure log**

The days logged from memory, the days marked partial, the hour any rule was changed, the days the cue change was undone, and any point the logging felt bad and you stopped, all dated.

5 - DESIGN - WEEK 5**The build**

The logging system itself - the pocket card or the four-question form - together with the twenty-eight-day daily count line with the change day marked, and the two occurrences-by-cue bar charts side by side.

6 - DESIGN - WEEK 5**One-page explainer**

One page a stranger reads in ninety seconds: the habit, occurrences per day, hours per year, the cue and its percentage, the one physical change, the second fortnight, and what twenty-eight days cannot tell anybody.

7 - BRANDING - WEEK 5**Identity card**

A name and a one-line promise for the measurement so it can be referred to by name, plus the single sentence you want repeated: the count, the cue, and no claim about anybody's character.

8 - OUTREACH - WEEK 6**Relations ledger**

Ten names with dates and replies: one psychologist, counsellor, teacher or behavioural researcher, three people the habit affects, three peers who checked your counting rule, and three people who replied to the chart you sent.

9 - DEFENCE - WEEK 6**Defence video**

Under three minutes on camera naming nobody: the definition, the count, the cue with its percentage, the physical change, the twenty-eight-day line, the result, and the limits you accept without argument.

The four tiers, in this project

Starter

You define one habit as an observable event, log fourteen days without a gap, name the cue present in most occurrences, produce a daily count chart, and question one stranger who studies behaviour.

Practitioner

You defend why your definition counts one event and not two, cite any borrowed logging method to its source, and produce one chart a stranger reads correctly without you explaining what a cue is.

Researcher

You write the definition and the recording rule before day one, justify fourteen days rather than seven, and quantify how much of the count you probably missed and which way that biases the cue ranking.

Contributor

You set your cue finding against published work on antecedents and habit interruption, defend your method to a behavioural researcher who disagrees, and publish the anonymised twenty-eight-day log openly so anybody can recount it.

The one expert you must talk to

Who. A psychologist, a school or workplace counsellor, a teacher who runs a classroom routine deliberately, or a behavioural researcher at a university or in a product or safety team - anybody whose job involves counting what people do rather than asking them what they do.

Where to find one. University psychology and behavioural science departments publish staff pages with email addresses and research interests; pick one whose interests mention habits, routines or self-monitoring. Search LinkedIn for 'behavioural researcher' or 'behavioural scientist' plus your city. A school counsellor is usually reachable through the school office in the first hour of the day, and a teacher who runs a tight classroom routine is an expert on cues whether or not they use the word.

SEND EXACTLY THIS

Hello, my name is [name]. I logged one small habit of my own for fourteen days and I now have a cue that shows up in most of them. I am not sure my cue is real rather than just always present. Could you spare fifteen minutes this week to tell me? I will send five questions first.

Ask them

1. When you count a behaviour, how do you decide where one occurrence ends and the next begins?
2. How much does the act of logging change the thing being logged, and how do people usually detect that?
3. How would you tell a real cue apart from something that is simply present all day?
4. When one cue is removed, what usually happens next, and how would that show up in a fourteen-day count?
5. If you had my twenty-eight days of data, what one column would you have asked me to record that I did not?

You will be asked, without warning

1. Would the count have fallen anyway without your cue change, and how do you know?
2. You were watching yourself for twenty-eight days. Show me where in your data you can separate the effect of the cue change from the effect of being watched.
3. Your top cue was present in most occurrences. How many hours a day was that cue present when the habit did not happen, and what does that do to your claim?
4. Somebody applies your definition to a day of your life and gets a different number from yours. Where would the disagreement come from, and which of you would be right?

If you get stuck

- If nobody replies to your interview requests - then stop writing and walk into the nearest school office at the start of the day and ask any teacher who runs a strict classroom routine how they get a whole room to do the same thing at the same signal.
- If your two fortnights look the same - then report that as the finding, check the nightly lines to see whether the cue change actually held on all fourteen days, and look at the second cue chart for something that took the old cue's place.
- If you could not catch the occurrences in time - then narrow the definition to a version you can catch, log a fixed four-hour window each day instead of the whole day, and state the window on every chart.
- If you run out of time - then keep both halves at fourteen days and drop the timing sample rather than the log, reporting the count without the minutes and saying on the page why the minutes are missing.

Finished early?

Log a second habit of your own alongside the first for the same twenty-eight days, without changing anything about it, so you have an untouched comparison line against your changed one.

The Cheapest Clean

Five methods already in your cupboard, one stain, one score each, and the rupees every use quietly costs.

THE QUESTION

Which of five cleaning methods already in your house shifts the same stain best, and what does each one cost per use?

Every claim printed on a cleaning label started as a controlled comparison somebody ran on a bench, and the industry that runs them - formulation, quality control, consumer testing - pays for people who can hold conditions still. A result means nothing without its controls, which is why the same cloth, the same dose, the same water and the same contact time matter more than the product does. Cost per use is how procurement teams in hospitals, hotels and factories actually choose between products, and almost nobody at home ever works it out.

ACT 1 - FIND

You take one stain that keeps returning in this house, make five identical patches on one cloth, and test five methods already in the cupboard under conditions you hold still and write down first. You then measure how much of each product a single test consumed and divide the pack price by the pack quantity, so every method carries a rupees-per-use figure beside its score.

A one-page costed problem statement: the stain, how often it happens, the five methods ranked by removal score out of five, the rupees per use printed beside each score, and the household's yearly spend on its current method at the real stain frequency. Beside it sit the five patches or their photographs in a row, the written scoring scale, and the dose behind every cost figure.

ACT 2 - FIX

The household switches to the winning method for one month, and every stain event is logged exactly as it was logged during the baseline fortnight: item, product, quantity used, rupees, minutes of scrubbing and the score afterwards. Both periods are then divided down to the same length so they can be set against each other.

Two comparisons on the same page - rupees per week and minutes per week, baseline fortnight against switched month - with the mean score achieved, the named confounders, and the household's recorded answer on whether the switch stays.

YOU MEASURE

rupees per use to shift one standard stain, and the removal score those rupees buy

BEFORE

Five identical patches from one cloth, the same stain quantity, the same stain age, the same water volume and temperature, the same contact time and the same scrub count, scored on a written five-point scale by three people who cannot see which method is which. Quantity used is weighed or counted per test and multiplied by the pack price divided by the pack quantity. Alongside it, a fourteen-day log of what the household spends and scrubs now.

AFTER

The same log kept for one month on the winning method - item, product, quantity, rupees, minutes and score for every stain event - with both periods divided by their number of weeks, so a fortnight and a month are compared as rupees per week and minutes per week.

Safety and ethics - not optional

- Never mix cleaning products with each other. Bleach with an acid - vinegar, lemon, lime, a descaler or a toilet cleaner - or bleach with ammonia releases a gas that damages lungs. This rule is absolute: one product per bowl, each bowl rinsed and emptied before the next, and no leftovers poured together.
- Work where air moves - an open window, an open door, or at an outdoor tap - with gloves on and an adult in the room for every test. Nothing is heated, boiled or put near a flame; every test uses water straight from the tap.
- Nothing is tasted, nothing is deliberately smelled, nothing is inhaled to identify it. Keep every product in its own labelled container, never decant into a drinks bottle, and rinse skin or eyes under running water immediately on contact.
- Any product carrying a hazard symbol is used exactly as its label instructs, or it is left out of the test. If the label is missing, or you cannot read what is inside, it does not go near a patch.

WHAT YOU USE - NO-TECH ROUTE

One old cotton item nobody needs, cut into five identical squares, with a pencil for labelling the backs

A quarter-teaspoon or a dropper kept for the project, a measuring jug for water, and a brush kept only for these tests

A watch or timer for contact time, and one bowl per method so nothing is ever mixed

A notebook ruled into seven columns: method, dose, pack price, pack quantity, rupees per use, three scores, mean

Tracing or greaseproof paper and a sharp pencil for the traced outline of every patch

Squared paper and a ruler for the hand-shaded five-point scale, the counted stain area and the bar charts

A hand-drawn five-point scale, a traced outline of every patch and squared paper give the same ranking and the same rupees per use; the arithmetic is done longhand in the margin where anybody can check it.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Pick the stain 40 MINUTES

Choose one stain that keeps coming back in this house and start counting how often it happens.

- Ask whoever does the washing which stain returns most - cooking oil, tea, ink, turmeric or grease - and write their answer down word for word.
- Count how many garments or cloths carry that stain right now and draw or list them on the first page.
- Rule a fourteen-day household stain log with columns: date, item stained, product used, quantity used, rupees, minutes spent, result.
- Walk to the shelf and copy every cleaning product's name, pack price and pack quantity off its label into the notebook.
- Write the household's usual method for this stain at the top of the page, in the words of the person who does it.

WRITE THIS DOWN

The chosen stain, the count of items carrying it now, the first dated row of the fourteen-day log, and every product with its pack price and pack quantity.

DONE WHEN

The log has its first dated row and every cleaning product in the house is listed with a price and a quantity copied off the pack.

Watch out. Choosing a rare, dramatic stain because it looks impressive. The number that matters is rupees per year, and that comes from the boring stain that happens weekly.

2

Make the patches 45 MINUTES

Cut one cloth into five identical patches and put an identical stain on every one.

- Take one old cotton item nobody needs and cut five squares of the same size from the same part of it, so weave and colour match across all five.
- Apply the stain with the same tool every time - one level quarter-teaspoon, or three drops from the same dropper - to the centre of each square.
- Stain all five within the same five minutes, so every patch is the same age when it is treated.
- Lay the five flat on a covered surface, label them one to five in pencil on the back only, and leave them the same number of hours to dry.
- Lay tracing paper over each dried patch and trace the outline of the stain, then count the squares it covers on squared paper and write that count down.

WRITE THIS DOWN

The cloth used, the square size, the stain quantity per patch, the time each was stained, the drying hours, and the starting square count for each patch.

DONE WHEN

Five squares carry the same stain applied within five minutes of each other, and each has a traced outline with a counted starting area.

Watch out. Cutting patches from different garments because one square was short. Different weave holds stain differently, and the test then measures cloth instead of method.

3

Fix the conditions 45 MINUTES

Write the protocol that holds everything still except the one method under test.

- Write the fixed conditions down before anything is mixed: same water volume in the jug, same water from the same tap, same contact time, same scrub count, same brush.
- Draw the five-point scale by hand: five shaded reference squares running from unchanged to no stain visible, each labelled in words, and pin it on the wall.
- Write how a patch gets scored: three people look at the front only, with the pencil labels turned away, and each writes a number without speaking.
- Read every hazard label aloud with an adult present and agree the rule out loud: one product per bowl, never two, and nothing heated.
- List the five methods, one per row, each with the exact dose it will be given.

WRITE THIS DOWN

The protocol as a numbered list, the drawn and labelled five-point scale, the scoring rule, and the five methods with their doses.

DONE WHEN

Another person could run the whole test from your written protocol without asking you a single question.

Watch out. Deciding the scale after seeing the results. A scale drawn afterwards always flatters the method you were hoping would win.

4

Run the five tests 60 MINUTES

Treat the five patches under identical conditions, one method each, and record the result twice over.

- Set out five separate bowls, one per method, with gloves on, a window open and an adult in the room before anything is opened.
- Time every treatment on the same watch to the same contact time, and count the scrubs aloud so somebody else can hear the count.
- Rinse each patch with the same jugful from the same tap and hang all five to dry in the same place for the same hours.
- Trace each dried patch again on fresh tracing paper and count the squares the remaining stain covers, giving a measured area beside the human score.
- Have three people score every patch against the drawn wall scale with the labels turned away, and write all three scores separately rather than agreeing one.

WRITE THIS DOWN

The five treatments with their timings and scrub counts, the three blind scores per patch, the mean score, and the before and after square counts.

DONE WHEN

Every patch carries three independent scores and a traced outline with a counted area before and after treatment.

Watch out. Scrubbing the stubborn patch a little longer to be fair to it. Those extra scrubs become the reason it won, and the test then measures your arm rather than the method.

5

Cost each use 50 MINUTES

Work out what one use of each method actually costs in rupees.

- Measure each product before and after its test with the kitchen scale, the jug or a counted number of drops or level spoons, and record the quantity consumed.
- Divide the pack price by the pack quantity longhand in the margin, leaving the working visible, to get rupees per millilitre or per gram.
- Multiply by the dose used to get rupees per use, then add water and fuel as one line marked as an estimate with the reason beside it.
- Draw the result on squared paper: rupees per use up the side, mean score along the bottom, one labelled point per method, with the scale stated.
- Underline the cheapest method that scored four or five, and underline twice the most expensive method that scored two or below.

WRITE THIS DOWN

Rupees per use for all five methods, the dose behind each figure, the counted areas, and the drawn cost-against-score chart.

DONE WHEN

You can name the cheapest method that scored well and the expensive one that did not, and show the longhand arithmetic behind both.

Watch out. Costing by pack price instead of by dose. A large expensive bottle can be the cheapest per use, and only the quantity consumed tells you which.

6 Name the cost 50 MINUTES

Finish the costed problem statement and choose the method the household will switch to.

- Write four lines: whose problem this is, how often the stain happens, what the current method costs per use and per year at that frequency, and what the winner would cost instead.
- Multiply rupees per use by the stain count from the fourteen-day log longhand, scale it to a year, and write the difference as one rupee figure.
- Pin the five patches themselves in a row across the page with the five cost figures written under them.
- Choose the winner on cost and score together and write: 'The household will use X for one month, and I expect rupees per week to fall from A to B and minutes per week from C to D.'
- Read the page aloud to whoever does the washing and have them sign and date it if they agree to the switch.

WRITE THIS DOWN

The one-page costed problem statement, the yearly figures for the current method and the winner, and the switch written as one testable sentence.

DONE WHEN

Somebody who was not there reads the page once and repeats your rupees-per-use figures back correctly.

Watch out. Picking the top score whatever it costs or however long it takes. A method nobody will keep using for a month measures nothing at all.

7 Agree the switch 40 MINUTES

Write the rules that keep the month's measurement identical to the fortnight's.

- Write what stays fixed: same log columns, same drawn scale, same watch, same scorer, same tap, same brush.
- Write what is allowed to move: only the product used to treat the stain.
- Set the winning product aside in one container, weigh it or mark its level on day one with a pen line, and write that starting reading down.
- Rule four blank labelled rows for weeks one to four, with the dates beside them, before any data exists.
- Write your prediction on the page, date it, and have one person witness it with their signature.

WRITE THIS DOWN

The protocol as a numbered list, the four week dates, the starting weight or marked level, and the witnessed dated prediction.

DONE WHEN

The page holds empty labelled rows waiting for four weeks and a signed prediction that predates the data.

Watch out. Starting the month with a fresh bottle and no starting mark. Mark the level on day one, or the month's real cost can never be recovered.

8 Week one switched 20 MINUTES ACROSS THE WEEK

Run the household on the winning method for one week and log every stain event the day it happens.

- Log each event on the day: item, product, quantity used, minutes spent scrubbing, and the score against the drawn scale.
- Read the container level or weight at the end of the week and compare it against the sum of the logged doses.
- Trace one treated item's stain before and after, so the month carries a measured record beside the patch tracings.
- Write down what went wrong: a forgotten entry, somebody reaching for the old bottle, a stain treated twice, an event nobody told you about.

WRITE THIS DOWN

The week one rows complete - events, rupees, minutes, scores - the container reading, plus a dated failure entry.

DONE WHEN

Week one carries every column the baseline fortnight had, and the failure log holds at least one honest entry.

Watch out. Reconstructing the whole week from memory on Sunday. Entries written days later lose the minutes, and minutes are half the finding.

9

Weeks two to four 60 MINUTES ACROSS THREE WEEKS**Finish the month, normalise both periods and compare them honestly.**

- Keep logging every stain event for three more weeks, changing nothing the protocol does not allow.
- Divide the baseline fortnight by two and the switched month by four, longhand, to get rupees per week and minutes per week for each.
- Draw four bars on squared paper to a stated scale: rupees per week before and after, minutes per week before and after.
- List every confounder you can name: fewer stains this month, a cook away from home, a price change, warmer water, somebody scrubbing harder than before.
- Write the change as a rupee figure, as a percentage and in minutes, and say plainly whether one month is enough to be sure.

WRITE THIS DOWN

The drawn comparison bars, the per-week figures for both periods, the difference in rupees and minutes, and the confounder list.

DONE WHEN

You can state the before figure, the after figure, and at least two reasons the difference might not be your doing.

Watch out. Comparing a fortnight's total against a month's total. Normalise both to the same length or the switch will look twice as expensive as it is.

10

Share and reflect 60 MINUTES**Publish the finding, defend it to real people, and record what the household will keep.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Read the one-page explainer to three people who wash clothes in this house or nearby and write down what each of them said.
- Hand or send the cost-against-score chart to the expert you interviewed with one question: what would you have controlled that I did not.
- Ask the household in front of a witness whether the switch stays and why, and write the answer down word for word.
- Complete the relations ledger with ten names, roles, dates and what each person replied.

WRITE THIS DOWN

The defence, signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships.

DONE WHEN

Ten relationships are logged with dates and replies, and the household has said on record whether the switch stays.

Watch out. Calling it a success because the house smells better. The metric is rupees per week and minutes per week - report those first and opinions second.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card naming the stain, the cloth, the five methods already in the house, and the question: which one shifts this stain best, and what does each cost per use.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for a dry cleaner, housekeeping supervisor or formulation chemist, your cost-against-score chart attached, the date and channel of the request, and the reply recorded word for word.

3 - RESEARCH - WEEK 4**Evidence log**

Every dose measured, every contact time and scrub count, all three blind scores per patch, every pack price with its pack quantity, and every stain event logged on the day it happened.

4 - PROCESS - WEEK 5**Failure log**

The patch scrubbed longer than the protocol allowed, the entry written three days late, the week somebody used the old bottle, and what each one did to the comparison, all dated.

5 - DESIGN - WEEK 5

The build

The test set-up itself - five bowls, one brush, one timer, the fixed photograph rig or the drawn scale - with the five patches in a row and the cost-against-score chart.

7 - BRANDING - WEEK 5

Identity card

A name and a one-line promise for the winning method, so the household can refer to it by name, plus the single sentence you want repeated in somebody else's kitchen.

9 - DEFENCE - WEEK 6

Defence video

Under three minutes on camera: the stain, the controls held still, the five scores, the rupees per use, the switched month, and the limits you accept without argument.

6 - DESIGN - WEEK 5

One-page explainer

One page a neighbour reads in ninety seconds: the stain, the five methods, the rupees per use beside each score, the switch, the month's result, and what this cannot tell them.

8 - OUTREACH - WEEK 6

Relations ledger

Ten names with dates and replies: one cleaning professional or chemist, three people who wash clothes here, three peers who checked your controls, and three people you sent the chart to who answered.

The four tiers, in this project

Starter

You run five methods on five identical patches, score them against a scale written beforehand, cost each per use from the pack price, and question one stranger who cleans for a living.

Researcher

You write the protocol before the first patch, justify three blind scorers and the dose you chose, and quantify the error added by your eye, your water and a single run per method.

Practitioner

You choose the stain and defend the choice, cite the pack price and pack quantity behind every cost figure, and make one chart of cost against score that a stranger reads correctly unaided.

Contributor

You set your ranking against a published cleaning or surfactant study, defend your controls to a chemist who disagrees, and publish your raw scores, doses and patch photographs openly.

The one expert you must talk to

Who. A dry cleaner or laundry owner, a hotel or hospital housekeeping supervisor, a formulation chemist at a soap or detergent maker, or a quality-control chemist who tests cleaning products for a living.

Where to find one. Walk into a dry cleaner mid-morning when the counter is quiet and ask for the person who treats the stains. A hotel front desk will pass a polite request to the housekeeping supervisor. Chemistry departments publish staff emails. Soap and detergent factories list a public number that reaches a quality lab. Search LinkedIn for 'formulation chemist' plus your city.

SEND EXACTLY THIS

Hello, my name is [name]. I have tested five household cleaning methods on five identical stained patches, holding water, time and scrubbing constant, and costed each one per use. Two of my results surprise me. Could you spare fifteen minutes this week to tell me what I have got wrong? I will send my five questions first.

Ask them

1. When you test whether a treatment works, what do you hold constant, and which of those has caught you out before?
2. How do you decide a stain is gone - by eye, against a scale, or by something you actually measure?
3. What do you pay per use for the product you reach for most, and how do you know that figure?
4. Which household remedy do customers believe in that you have watched fail on your own bench?
5. If a stain like mine arrived at your counter, what would you do first, and why that first?

You will be asked, without warning

1. Would the household's cleaning spend have fallen anyway this month without your switch, and how do you know?
2. Three people scored your patches by eye. What would two more scorers have done to your ranking, and how exactly did you stop them seeing which method was which?
3. Each method got one patch. Convince me one run per method is enough, and tell me what a second run would most likely have changed.
4. A neighbour has harder water and a different cloth. Which part of your result travels to their house, and which part stays in yours?

If you get stuck

- If nobody replies to your interview requests - then walk into a dry cleaner at a quiet hour and ask the person at the counter two questions while they work.
- If your before and after look the same - then report that as the finding, check first whether the household actually used the winning method on every stain event, and write what you find in the failure log.
- If you cannot weigh the product used - then count level quarter-teaspoons or drops from the same dropper, weigh one dose once on a shop's scale, write that conversion at the top of the page, and mark the row as estimated.
- If you run out of time - then shorten the switched period to two weeks rather than dropping the baseline fortnight, normalise both to rupees per week, and print the shortened period on the chart itself.

Finished early?

Run the same five methods against a second stain and find out whether the winner holds or whether the ranking turns over completely.

The Question Nobody Asked

Ask twenty neighbours what quietly wastes their time, then add up the hours your street loses every month.

THE QUESTION

What is the one problem the people on your street raise without being prompted, and how many hours or rupees does it take from every household each month?

Councils, utilities, housing developers and every organisation that serves a neighbourhood spend money on problems that were assumed rather than asked about, and the assumed problem is rarely the expensive one. Finding the real one takes a fixed open question, verbatim answers, honest grouping and a cost per household that somebody can check. That is the method behind community needs assessment, service design and municipal budgeting, and it is paid work precisely because most organisations skip it and pay twice.

ACT 1 - FIND

You ask fifteen to twenty households on one street or in one building the same open question - what is the one thing here that wastes your time or your money that nobody has ever asked you about - and you write every answer down in the words used rather than in your summary of them. You then group the answers, find the problem raised unprompted most often, and cost it in minutes per household per week or rupees per household per month, from timings you take yourself and figures residents actually reported.

A one-page costed problem statement carrying four lines: how many households you asked and how many refused, how many raised this problem unprompted, the cost per household per week or per month with each figure marked measured or reported, and the total hours or rupees the street loses every month. Beside it sits a bar chart of problems by count, largest first.

ACT 2 - FIX

You organise one small change with at least three neighbours - a shared rota, a sign, a bin moved, a step repaired, one pooled purchase - with permission from whoever is responsible for the space, and you keep it running for fourteen days while logging every time it fails. You then measure the identical quantity again, in the same households, at the same time of day, with the same timing rule.

A two-bar chart of minutes per household per week, before against after, with the recalculated street total per month, the difference stated in hours or rupees, a dated log of every day the change broke or was ignored, and a named list of everything else that could explain the difference.

YOU MEASURE

minutes lost per household per week on the problem residents raise most, totalled as hours across the street each month

BEFORE

Three timings taken by you of the activity itself, plus how often it happens per week as reported by each household to a fixed question, multiplied out per household and scaled to the street by the median. Every figure is marked measured or reported and the two are never mixed in one total without saying so.

AFTER

The identical activity timed three times again with the same watch, the same frequency question read word for word, in the same coded households and at the same time of day, fourteen days after the change was put in place.

Safety and ethics - not optional

- Never go alone. A named adult knows the street, the hours you will be there and when you will be back, and for anyone under eighteen that adult goes with you and stays within sight for every doorway.
- Never enter anyone's home. Ask at doorways, at gates or in shared public space, in daylight only, and finish before dark.
- Record no names, no house numbers, no telephone numbers and no photographs of people. Every household is a code number, and any photograph of the place is taken with nobody in the frame.
- Anybody may decline. Count refusals and never chase them, never call twice at the same door, and if anyone becomes angry leave immediately, say nothing back, and write down what happened as soon as you are away.

WHAT YOU USE - NO-TECH ROUTE

- A notebook ruled into columns and a clipboard, so you can write standing at a doorway without leaning on anything
- A card with the one open question written out once, read word for word at every door
- A numbered list of households, so every answer is recorded against a number and never against a name or a house number
- A watch or a clock with a second hand for timing the activity three times
- Squared paper for the problems-by-count chart and the before-and-after chart, both drawn to a stated scale
- A sheet of paper and a pen for the rota or the sign, copied by hand or at a photocopy shop

A clipboard, a ruled notebook and a watch collect the same verbatim answers and the same timings; the question is read from a card every time so the wording never drifts, and both charts are drawn on squared paper to a stated scale.

Act 1 – find the problem steps 1 to 5, ending with a costed problem statement

1 Choose the street 45 MINUTES

Pick one street or one building, tell a named adult where you will be, and fix the single question you will ask everyone.

- Draw the street or the building on one page with each household as a numbered box, and write no house number and no name anywhere on it.
- Write the question on a card, once: 'What is the one thing here that wastes your time or your money that nobody has ever asked you about.'
- Tell a named adult the street, the hours and your return time, and for anyone under eighteen arrange for that adult to come along and stay within sight.
- Write the doorway opening line on the back of the card: who you are, what the question is for, how long it takes, and that they are free to say no.
- Rule the notebook into four columns: household code, the answer word for word, refused, time of day.

WRITE THIS DOWN

The coded street sketch, the question card, the opening line, and the name of the adult who holds the plan.

DONE WHEN

The question exists in one fixed wording on a card, households are numbers, and a named adult knows the street and the hours.

Watch out. Writing a question that suggests its own answer, such as asking about rubbish or about water. An open question collects what people think; a narrow one collects what you assumed.

2

Ask the doorways 3 HOURS OVER THREE DAYS

Put the same open question to fifteen to twenty households and write every answer down word for word.

- Call in daylight, at the doorway, the gate or the shared space, and never step inside for any reason.
- Read the question from the card exactly as written, then stop talking however long the silence runs.
- Write the answer in their words, including repetition and hesitation, and never in your own summary of it.
- Where an answer is long, read it back and ask whether you have written what they meant, then correct it in front of them.
- Mark every refusal in the refused column against a household code and move on without asking twice.

WRITE THIS DOWN

Fifteen to twenty verbatim answers against coded households, the refusal count, and the time of day each door was called at.

DONE WHEN

Every answer sits in the resident's own words, refusals are counted, and no name or house number appears in the notebook.

Watch out. Writing three words and trusting yourself to remember the rest. Write it while they are speaking; the sentence you reconstruct at home is your sentence, not theirs.

3

Group the answers 60 MINUTES

Sort the verbatim answers into groups and find the problem raised unprompted most often.

- Copy each answer onto its own slip of paper and read all of them through once before sorting anything.
- Lay the slips out on a table and push them into piles, giving every pile a name taken from the residents' own words.
- Count the slips in each pile, and count separately how many raised that problem first, before anything else in their answer.
- Shuffle the slips and ask one person who did not do the survey to make their own piles blind, then compare pile by pile.
- Draw the problems-by-count bar chart on squared paper, largest bar first, with the count written on each bar.

WRITE THIS DOWN

The pile names with their counts, the first-mention counts, and every slip your grouping and the blind grouping placed differently.

DONE WHEN

One pile is clearly the largest, and a second person sorting blind built broadly the same pile.

Watch out. Sorting the slips while looking for the answer you hoped for. Read them all first, sort second, and keep the disagreements visible.

4

Cost it per household 90 MINUTES

Turn the top problem into minutes per household per week or rupees per household per month, measured wherever it can be measured.

- Return to five households who raised it and ask two fixed questions: how long does it take each time, and how many times a week does it happen.
- Time it yourself with the watch wherever it can be timed - the walk, the queue, the wait, the second trip - three separate times, writing all three down.
- Walk to the shop or the office and write down any price yourself rather than trusting a remembered figure.
- Rule one row per household, work out the median and the mean longhand in the margin, and show both.
- Mark every figure M for measured or R for reported, and never add the two into one total without saying which is which.

WRITE THIS DOWN

Minutes per household per week or rupees per household per month, each marked M or R, with the median and the mean side by side.

DONE WHEN

Every figure traces either to a timing you took or to a sentence a resident said, and each carries its M or its R.

Watch out. Accepting 'not long' as a number. Ask how long each time and how often, then multiply longhand where they can see you doing it.

5

Total the street 45 MINUTES

Scale the per-household cost to the whole street each month and check that total with residents themselves.

- Multiply the median per-household figure by the number of households and then by the weeks in a month, leaving the working visible on the page.
- Write how many households you asked against how many exist, and label the rest plainly as an assumption.
- Convert minutes into hours at the very end rather than in the middle, and round exactly once.
- Read the total back to three residents and write down whether each said it sounds high, low or about right.
- Write one line naming what would make this total wrong and roughly by how much.

WRITE THIS DOWN

The street total in hours or rupees per month, the longhand working, the sample against the street size, and the three reactions word for word.

DONE WHEN

You can say the total in one sentence and immediately name the assumption it rests on.

Watch out. Presenting a total as measured when most of it was scaled from five households. Say what you measured and say what you multiplied.

Act 2 – fix it and measure steps 6 to 10, ending with a proven effect

6

Name the cost 50 MINUTES

Finish the costed problem statement on one page and agree one small change with at least three neighbours.

- Write four lines: whose problem this is, how many households raised it unprompted, the cost per household, and the total hours or rupees the street loses each month.
- List three changes that need nothing bought: a shared rota, a sign, a bin moved, a step repaired, one pooled purchase.
- Take the page back to the households who raised it, ask which change they would actually take part in, and write down the refusals as carefully as the agreements.
- Get three neighbours to take a role each, recorded by household code, with what they agreed to do and on which days written beside the code.
- Write the prediction: 'We will do X for fourteen days and expect minutes per household per week to fall from A to B.'

WRITE THIS DOWN

The one-page costed problem statement, the three candidate changes, the roles against household codes, and the dated prediction.

DONE WHEN

Three neighbours have each taken a role, and the prediction is on the page before anything changes.

Watch out. Choosing the change you can organise on your own. A change with no neighbours inside it measures your effort, not the street's problem.

7

Set it up 60 MINUTES

Put the change physically in place and fix the rules that keep the after-measurement identical to the before.

- Ask whoever is responsible for the space before anything is moved, repaired or fixed to a wall, and record the permission by role rather than by name.
- Make the thing itself by hand: letter the sign, rule the rota onto one sheet, move the bin, repair the step with what is already to hand.
- Write what stays fixed: same coded households, same question wording, same watch, same three-timing rule, same time of day.
- Write both dates at the top of the page - the start and the re-measurement fourteen days later - and tell the three neighbours both of them.
- Draw or photograph the sign, the rota or the repair with nobody in the frame, and date it.

WRITE THIS DOWN

The protocol as a numbered list, the permission recorded by role, the two dates, and the dated drawing or photograph of the change.

DONE WHEN

The change is physically in place, permission is on record, and the re-measurement date is written down before any after-data exists.

Watch out. Fixing something in a shared space without asking first. Ask; a change taken down in three days by whoever owns that wall measures nothing at all.

8

Run the fortnight 45 MINUTES ACROSS TWO WEEKS

Keep the change running for fourteen days and log what actually happens to it, including the days it fails.

- Walk past the rota, the sign or the repair every second day and write one dated line on its condition.
- Log every time it is ignored, removed or complained about, with the date and no name attached.
- Ask the three neighbours once a week whether they are still doing their part, and write the honest answer rather than the polite one.
- Where it breaks, put it back once and write that you did, then leave it alone if it breaks again.
- Rule a dated failure entry into the log each week whether or not anything went wrong.

WRITE THIS DOWN

A dated condition line every second day, every failure with its date, and the three neighbours' weekly answers word for word.

DONE WHEN

Fourteen days of dated entries exist, including the days nothing happened, and every failure is written rather than quietly repaired.

Watch out. Quietly fixing the change every morning so it looks like it worked. Record the repairs; keeping it alive is part of what it costs.

9

Measure again 90 MINUTES**After fourteen days, measure the same quantity in the same households, in the same way, and compare.**

- Return to the same coded households in the same order and at the same time of day, including those who chose not to join the change - but never to a household that asked not to be called on again.
- Time the same activity with the same watch, three times again, and write all three timings down.
- Read the frequency question from the card word for word, exactly as it was asked the first time.
- Redo the arithmetic longhand in the same form as before, giving minutes per household per week and hours across the street per month.
- Draw two bars on squared paper to one stated scale, and list every confounder: weather, a holiday, a repair by somebody else, a household that moved, a shop that closed.

WRITE THIS DOWN

The after figure for each coded household, the new street total, the difference in hours or rupees per month, and the confounder list.

DONE WHEN

Before and after exist for the same coded households, measured identically, and at least two reasons the difference might not be yours are named.

Watch out. Re-asking only the households that joined in. Ask everybody you asked the first time, or your after-number is a survey of your own supporters.

10

Share and reflect 60 MINUTES**Publish the finding back to the street, defend it, and record whether the change stays.**

- Deliver the defence out loud in under three minutes to three people who sign and date the page, or record it on a borrowed phone.
- Pin the one-page explainer where the street can read it, with permission from whoever owns that wall or board, and with no names on it.
- Hand the before-and-after chart to the expert you interviewed with one question: what would you have measured that I did not.
- Ask the three neighbours in front of a witness whether the change stays now that the fortnight has ended, and write each answer word for word.
- Complete the relations ledger with ten entries - names for the expert, the peers and the people you shared with, codes for every resident.

WRITE THIS DOWN

The defence signed and dated by its witnesses, the one-page explainer, and the relations ledger holding ten relationships with dates and replies.

DONE WHEN

Ten relationships are logged with dates and replies, and the street has been given the after-number whether it improved or not.

Watch out. Publishing only because it worked. A street that lost the same hours after fourteen days is a finding - say so, and say what you think stopped it working.

Your nine deliverables in this project**1 - RESEARCH - WEEK 2****Question card**

One card carrying the single open question in its final wording, the street as a coded sketch, and the number of households on it against the number you intend to ask.

2 - OUTREACH - WEEK 3**Expert interview pack**

Five written questions for a social worker, councillor or municipal officer, your grouped answers and street total attached as one page, the date of the request, and the reply word for word.

3 - RESEARCH - WEEK 4**Evidence log**

Every answer in the resident's own words against a household code, the refusal count, all three timings for each measurement, and every figure marked measured or reported.

4 - PROCESS - WEEK 5**Failure log**

The doors that never opened, the answers you had to summarise and why, the days the rota was ignored, the resident who became angry and what you did, all dated.

5 - DESIGN - WEEK 5

The build

The change itself - the rota sheet, the lettered sign, the moved bin, the repaired step - photographed with nobody in the frame, plus the two-bar before-and-after chart of minutes per household.

7 - BRANDING - WEEK 5

Identity card

A name and a one-line promise for the change, so neighbours can refer to the rota or the sign by name, plus the single sentence you want repeated at the next doorway.

9 - DEFENCE - WEEK 6

Defence video

Under three minutes on camera: the question, the counts, the cost per household, the street total, the change, the after number, and the limits you accept without argument.

6 - DESIGN - WEEK 5

One-page explainer

One page a neighbour reads in ninety seconds: the question asked, what people said, the cost per household, the street total per month, the change, and the after number.

8 - OUTREACH - WEEK 6

Relations ledger

Ten entries with dates and replies: one social worker or municipal officer, three residents the problem affects by code, three peers who checked your grouping, three people you shared with who answered.

The four tiers, in this project

Starter

You ask fifteen to twenty households one fixed open question, record every answer word for word, cost the top problem, and put your questions to one social worker or community organiser.

Practitioner

You choose the street and defend the choice, have a second person group your answers blind and report where you disagreed, and make one chart a stranger reads correctly unaided.

Researcher

You fix the wording and the timing rule in writing before the first doorway, justify your sample against the number of households on the street, and quantify what refusals do to the street total.

Contributor

You set your street's figure against a published municipal or academic estimate for the same problem, defend your method to a councillor or municipal officer, and publish your coded data openly.

The one expert you must talk to

Who. A social worker, a union council member or councillor, a community organiser, or a municipal officer responsible for this area. A shopkeeper who has stood on that street for years hears every complaint before the council does and counts as an expert here.

Where to find one. Union council and ward offices keep public hours and a complaints desk. Municipal corporations publish a sanitation or works officer for each area. Organisations working locally list a field coordinator on their site. The oldest shop on the street is open now, and the person behind the counter has heard the problem for years.

SEND EXACTLY THIS

Hello, my name is [name]. I asked eighteen households on one street one open question: what wastes your time or money here. I wrote every answer word for word, and one problem came up far more than the rest. Could you spare fifteen minutes this week to check my costing of it? I will send five questions first.

Ask them

1. When you want to know what a street actually needs, what do you ask, and what have you learnt never to ask?
2. Which problems do residents raise unprompted, and which ones do they only mention when you name them first?
3. How do you put a cost on something like waiting or walking, and what figure would a council accept from me?
4. What small changes have you seen a handful of neighbours make stick, and what did the ones that failed have in common?
5. If I brought you this street total tomorrow, what is the first thing you would check before believing it?

You will be asked, without warning

1. Would this change have happened anyway without your organising, and how do you know?
2. You scaled a handful of households to the whole street. Name the households that would break that total, and say by how much.
3. You wrote the answers verbatim and then grouped them yourself. Show me one grouping decision you got wrong, and what it did to the count.
4. Two weeks after your fortnight ended, is the rota still running, and what is your number worth if it is not?

If you get stuck

- If nobody will open the door - then ask in public space instead, at the shop, the gate or the water point, and record every refusal with the time of day it happened.
- If your before and after look the same - then report it as the finding, check first whether the change was actually kept on all fourteen days, and write what you find in the failure log.
- If you cannot time the thing - then ask five households how often and how long each time, mark every figure reported rather than measured, and print that on the chart itself.
- If you run out of time - then shorten the after-period to seven days rather than dropping the baseline, and state the shortened period on the chart itself.

Finished early?

Ask the identical question on a second street with the same problem but no change made, and set the two after-totals side by side.

When you have finished

There is no separate portal, and the assessment itself is free.

1. Fill in the **Project Assessment & Submission Template** - free at earlyagedevelopment.com/EAD_Labs.html
2. Put it in a document, or scan your pages, and set the link so anyone with it can view
3. Open **Book Free Consultation** at the bottom of earlyagedevelopment.com
4. Tick **"Others"** and paste your link with the project name and route

Assessment comes back within two weeks

Written feedback on every section, a mark out of twenty, and unlimited free resubmissions. Passing activates your EAD Labs Community membership - which is earned by finishing one project, not bought.

Everything here is free, and stays free

Run it with thirty learners or with one. The full facilitator pack - handbook, marking rubric, checkpoint cards and class tracker - is also free at earlyagedevelopment.com/EAD_Labs.html, and one teacher per school is trained free.

Want this with your school's name on it? We print school-branded editions - your logo on the cover, ours beneath it - and deliver the copies to your campus. Write to support@earlyagedevelopment.com with the route and the number you need.

The gate is the assessment, never the fee. If a learner passes and cannot pay for certification, a school, a sponsor or the community fund covers them.

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Notes

Your before figure, your one change, the dates you took each reading, and anything that went wrong. Keep it here rather than on loose paper - the failure log carries six of the twenty marks.

Your ten relationships

One expert, three people the problem affects, three peers who reviewed it before you finished, and three people you showed the finished work to who replied. Name, role, date, and what they said. Ten logged relationships are a gate, so keep this page complete as you go.

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Their students apply with a CV. Ours apply with proof.

Every project in this booklet ends the same way: a number measured before a change, the same number measured after it, and an honest answer about what caused the difference. That is what a learner walks out holding.

HOW ONE PROJECT RUNS - ABOUT SIX WEEKS

Act 1 - Find

Steps 1 to 5. Measure something ordinary until you can say what it costs, per week or per year.

The gate

A before figure, dated, with its instrument and method written beside it. Nothing is marked without one.

Act 2 - Fix

Steps 6 to 10. Change one thing. Measure the same quantity the same way. Report what happened.

The defence

Ten to twelve minutes of unseen questions. It carries more marks than everything else put together.

WHAT YOU HAND IN - NINE THINGS

- **Question card** and **evidence log** - the quantity, the unit, every dated reading
- **Expert interview pack** - one person who does this for a living
- **Failure log** - what slipped, and what each slip cost the comparison
- **The build**, the **one-page explainer** and the **identity card**
- **Relations ledger** - ten named people with dates and replies
- **Defence video** - under three minutes, on camera

HOW IT IS MARKED

6

the artefact

6

process and
failures

8

the defence

- **Two gates, neither waivable.** Ten logged relationships, and a baseline taken before the change
- **AI marks. Humans certify.** Feedback on every section within two weeks
- **Tiers, never ages.** Starter, Practitioner, Researcher, Contributor - declared, not assigned

A well-measured failure scores higher than an unmeasured success.

If the change did not work and you measured it properly, say so plainly. It costs you nothing and it is worth more than a tidy number nobody can check. That rule is printed in the marking bands, not just in the guidance.

Put your school's name on this cover

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All twelve projects, both routes, the assessment template, the marking rubric, the facilitator handbook, the checkpoint cards and the class tracker are free at

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