

Physiology sensor lab: paper preparation

Your goal: Paper preparation only. No setup, calibration, human measurement or treatment is authorized here. Actual physical work requires the teacher-approved device-specific protocol, authorization and supervision; ask for these inputs before doing it. Today's objective: Collect physiological data using sensors under controlled conditions.

One product: Raw physiology data table: labeled trials, baseline and treatment conditions, measurement values with units, and a brief condition-control note.

Question: Can each raw entry be traced without inventing a value or a physical action?

Start the work

A useful data plan states its purpose, necessary information, access and retention before collection.

1. Paper preparation only. No setup, calibration, human measurement or treatment is authorized here. Actual physical work requires the teacher-approved device-specific protocol, authorization and supervision; ask for these inputs before doing it. Paper route: inspect which device or protocol inputs C1 does not supply. Actual route only: Set up the sensor and calibrate it per the protocol.
2. Paper preparation only. No setup, calibration, human measurement or treatment is authorized here. Actual physical work requires the teacher-approved device-specific protocol, authorization and supervision; ask for these inputs before doing it. Paper route: copy supplied A/B rows from D1. Actual route only: Record baseline and treatment measurements for each trial.
3. Paper preparation only. No setup, calibration, human measurement or treatment is authorized here. Actual physical work requires the teacher-approved device-specific protocol, authorization and supervision; ask for these inputs before doing it. Paper route: review already-supplied repeated rows without collecting new data. Actual route only: Repeat trials to capture variation.
4. Paper route: preserve D1 in one structured table. Actual route: Log all readings in a structured data table. Use only genuine assigned data and directions.
5. Use the linked assignment; if access fails, save locally and ask the teacher for help. After uploading, check that Schoology shows Submitted. Today's requirement: Submit your raw data table.

If blocked, save locally and ask for help with the missing input or assignment access.

Words you will use

baseline

The stated reference condition for a comparison.

treatment

The comparison condition label; here B is hypothetical and prescribes no intervention.

trial

One labeled observation attempt within the declared record structure.

participant

A person in a real study; V01 is fictional and is not a participant.

repeated observation

Another record referring to the same declared subject or object.

quantity

The property represented, such as pulse rate.

unit

The measurement scale attached to a value.

bpm

Beats per minute, the unit used for the fictional pulse-rate values.

raw record

A preserved individual reading and its identifying context before summaries.

control

A condition intended to remain consistent in a comparison; intent is not proof it was maintained.

variation

Differences among recorded values.

sensor

A device that responds to a quantity; no device is operated here.

calibration

Relating an instrument response to a reference through a defined measurement process; not an automatic approval.

reference check

A comparison with a specified reference under actual instructions; no check is supplied here.

accuracy

Closeness to the value of the quantity intended to be measured; repeated agreement alone does not establish it.

simulated evidence

Invented teaching records, not observations from actual people or equipment.

missing data

A needed value absent from the source; preserve the absence.

NA

Here, no numeric value supplied; not a measured zero.

timestamp

A time label; here only an invented mm:ss ordering offset.

mm:ss

Minutes and seconds notation, not an instruction about measurement duration.

status

A label describing what is supplied or genuinely completed.

quality note

A record of a known limitation or issue, not an invented diagnosis.

protocol

The actual approved directions defining the task and its requirements.

condition-control note

A brief statement of documented conditions and limits.

precision of display

How finely values are written; whole numbers here do not imply instrument accuracy.

independent participant

A distinct person, not another trial from the same person.

causal claim

A claim that one factor produced a change; this paper record cannot establish one.

Schoology submission check

After uploading, look for Submitted in the linked assignment.

H1: Paper records before physical work

Paper preparation only. No setup, calibration, human measurement or treatment is authorized here. Actual physical work requires the teacher-approved device-specific protocol, authorization and supervision; ask for these inputs before doing it.

Choose one route with the teacher. Original route uses only the invented records below; nobody is measured. Actual assigned data may be documented under genuine directions instead. Do not assume a prepared study plan, consent, equipment, calibration or prior task is complete.

Opening example: invented record H-A says trial 1, A baseline, 72 bpm, SUPPLIED; H-B says trial 2, A baseline, NA, MISSING. NA means no value is supplied, not zero. Original route: name the available reading with unit and the missing value. Actual route: identify a genuine supplied value/unit and whether data are missing instead, or ask for a missing input. One response only.

C1: Complete fictional conventions

Original practice only. This is an author-created pulse-rate record, not physiological data collected from a person. V01 denotes one fictional record subject. All ten rows repeat that same fictional subject; ten rows do not mean ten participants. There is no actual intervention, exercise or participant.

A baseline is the reference label; B treatment label is the hypothetical comparison label. No physical condition or activity is prescribed. The exercise asks whether the table preserves the source records, not whether a treatment changes physiology.

Each row contains record ID, subject code, condition label, within-condition trial number, invented timestamp, value in bpm, and status. bpm means beats per minute. Values are displayed as whole numbers solely by the exercise convention; this is not a device specification or evidence of measurement accuracy.

Timestamps use mm:ss as invented record-order offsets from an arbitrary zero, not clock times, sampling windows, rest intervals or instructions to measure every minute. Trial numbers restart at 1 within each condition; the R identifier is unique across the table. Condition labels are given directly; no onset rule is needed.

SUPPLIED means a numeric value was included by the author, not validated by a device. MISSING means the author deliberately omitted the value. R08 is the only omitted value; its reason is “no value in the fictional source,” not a diagnosed sensor failure. Preserve NA and MISSING; never replace them with zero or a guessed reading.

Constructed condition-control record C-N: all rows use the same fictional subject code, quantity, unit and display convention; A/B is the intended comparison label. Device, placement, sampling duration, actual conditions and calibration/verification were not performed or supplied. These limits prevent any claim of physical control or causal effect. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

D1: All ten source rows

INVENTED PAPER RECORDS ONLY. Columns: record ID | fictional subject | condition | trial within condition | invented mm:ss offset | pulse-rate value (bpm) | status. No row is an actual person's reading.

R01 | V01 | A baseline | 1 | 00:00 | 72 | SUPPLIED

R02 | V01 | A baseline | 2 | 01:00 | 71 | SUPPLIED
 R03 | V01 | A baseline | 3 | 02:00 | 73 | SUPPLIED
 R04 | V01 | A baseline | 4 | 03:00 | 72 | SUPPLIED
 R05 | V01 | A baseline | 5 | 04:00 | 74 | SUPPLIED
 R06 | V01 | B treatment label | 1 | 05:00 | 75 | SUPPLIED
 R07 | V01 | B treatment label | 2 | 06:00 | 74 | SUPPLIED
 R08 | V01 | B treatment label | 3 | 07:00 | NA | MISSING
 R09 | V01 | B treatment label | 4 | 08:00 | 76 | SUPPLIED
 R10 | V01 | B treatment label | 5 | 09:00 | 75 | SUPPLIED

Quality note for every SUPPLIED row: author-invented value; no physical validation. R08 quality note: no value in the fictional source; retain NA/MISSING. C-N applies to every row. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

R1: Assemble one raw record

Original route: create one table with all seven D1 columns. During the baseline slot transfer R01–R05; during the comparison slot transfer R06–R10. Preserve every identifier, label, trial, timestamp, value and status. Include the common quality notes and C-N once beneath the table rather than copying them ten times.

All rows already exist; “repeat” means inspect the supplied repeated rows here, not collect another measurement. Check the source and table side by side. Keep all ten records, including R08. No mean, standard deviation, graph, t-test, new variable worksheet or second dataset is assigned.

If stuck, transfer R01 with all columns and verify its unit/status, then R08 with NA/MISSING. Return to finish every remaining row. Work alone using D1; no partner or equipment is needed. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Q1: Check completeness and limits

Original route: count the distinct IDs, the A rows and the B rows in your table, and check the within-condition trial numbers. Count subjects, supplied numeric values and missing values, and match every count to D1. Check that no unit or timestamp has been changed and no missing value silently dropped.

Compare R01 72 bpm and R02 71 bpm: the invented values differ. That is variation in this record. It does not establish device accuracy, ten independent people, a representative population or a treatment effect. No cause is assigned to the difference.

NIST describes calibration in relation to a reference standard or designated measurement process. Its traceability policy also says traceability alone does not guarantee fitness for purpose. Therefore a calibration label is not blanket proof that a result is suitable. This packet supplies no calibration method, check result or instrument approval. Sources: NIST-CAL and NIST-TRACE.

Actual route: use the genuine protocol's structure, device requirements, missing-data rules and rubric instead; the ten-row practice rules are not authentic quotas. Do not invent a failed check, erase an actual reading or add a physical repeat unless genuinely authorized.

N1: Condition-control note on the same table

Original route: write a brief note naming C-N's intended comparison and repeated-subject structure. Name the conventions held consistent in the invented records. State which physical controls or quality evidence are absent. Identify R08's missing value truthfully. Say "the supplied fictional record uses" rather than "I controlled the participant."

Actual route: describe only conditions and deviations actually documented under the approved protocol. Use genuine evidence; missing or unknown controls stay unknown. No duplicate C-N note is required. A documentation exercise does not certify a safe or valid human study.

Keep the note with the raw table. No separate CER or causal conclusion is needed. On March 5, D1 is a separate invented dataset, not these repeated V01 rows or a claim that your lab was completed.

S1: Genuine prerequisites and destination

Keep thirteen work checks separate. Check 1: actual purpose/comparison/protocol. Check 2: device/model/quantity/units. Check 3: required calibration or verification instructions and evidence. Check 4: teacher authorization/supervision. Check 5: participation/consent/accommodations process. Check 6: privacy/access/retention directions. Check 7: actual operation/stopping/cleaning directions. Check 8: genuine raw readings and trial structure. Check 9: actual control/deviation records. Check 10: rubric/format. Check 11: official task/completion. Check 12: confirmed destination. Check 13: whether Schoology shows Submitted. For each, give a non-private evidence pointer for what you did or name a missing input and next action. Use an existing record and update only changes.

The equipment inventory and hypothetical A/B labels do not authorize self-testing. Do not measure yourself or anyone else, apply a treatment, handle devices or collect personal medical details from this packet. The teacher supplies actual directions, required approvals and alternatives.

Your teacher may also assign Problem 2, Activity 2.1.2 Science and the Media. Confirm its instructions and stopping point; the title is not a sensor protocol. Do not infer access or completion.

Open the linked BI assignment and check its posted deadline and current format. Open the linked BI assignment in your enrolled course. If blocked, save the labeled preparation locally and ask for help with the missing input or access problem. Uploading a table is not automatically official completion.

M1: Different complete transfer model

Optional original non-human model: two invented storage-temperature records, not actual readings. Subject code BOX-X denotes one fictional container. Condition A is a reference label only. Columns are record | object | condition | trial | invented mm:ss offset | temperature in degrees Celsius | status. Whole-degree display is this exercise's convention, not an instrument specification.

M01 | BOX-X | A | 1 | 00:00 | 18 | SUPPLIED. M02 | BOX-X | A | 2 | 01:00 | NA | MISSING. SUPPLIED means author-provided number; MISSING means no number supplied. Offsets order the fictional records; they prescribe no timing.

Worked table transfer retains M01 at 18 degrees Celsius and M02 as NA/MISSING, with both IDs and timestamps. It does not average, delete M02 or replace it with zero.

Worked note: "The fictional record repeats BOX-X under label A with a common unit/display convention. M02 has no supplied value. No actual container conditions or instrument verification are provided." This is a documentation model, not another dataset to complete. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Try the decision

Original route: R08 has no number. Actual route: apply genuine missing-data directions instead, with no duplicate practice.

- Keep R08 marked NA/MISSING and retain its source note in the table.
- Replace the missing R08 entry with zero and treat it as a recorded measurement.
- Invent a value resembling nearby entries to complete the pattern in the table.

Explain your choice using the reading. Discuss it or say it to yourself. This practice does not add another submission.

Your 80-minute flow

0–10 minutes	Read H1 and choose a route; record missing actual prerequisites. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.
10–20 minutes	Original route: transfer supplied baseline rows. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.
20–50 minutes	Original route: transfer supplied comparison rows and inspect all metadata. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.
50–65 minutes	Original route: check existing repeats and completeness; collect no new reading. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.
65–75 minutes	Check and retain the same table through a verified destination or save locally if blocked. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.
75–80 minutes	Add the brief condition-control note and update only work checks that changed. Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Your response record

Use these labels on paper or in your document. The space below also works when this page is printed.

Chosen route: value, unit and missing data

Original route: use H1 only to identify H-A and H-B. Actual route: use genuine assigned evidence instead or ask for it if missing.

Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

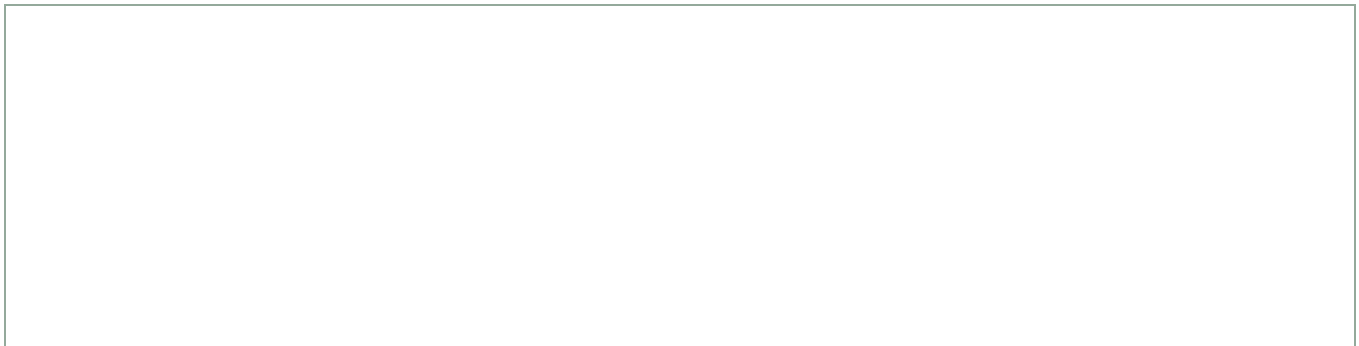


Original or actual baseline records

Original route: transfer R01–R05 with every column and common quality note.

Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.



Original or actual comparison records

Original route: transfer R06–R10, retaining R08 as NA/MISSING.

Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

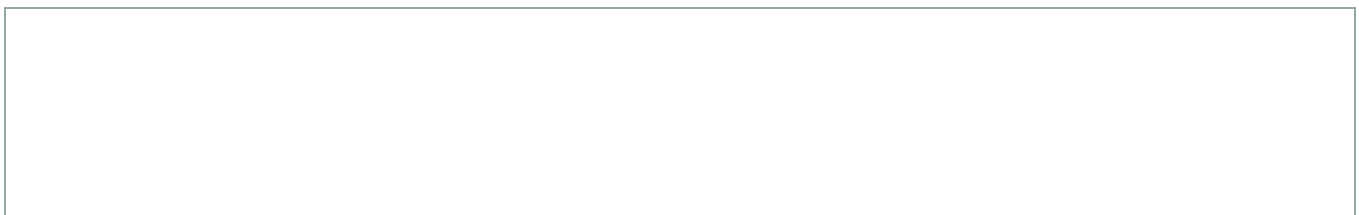


Check the same table

Original route: use Q1 to check all identifiers, conditions, repeats, units and missing data.

Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.



Condition-control note

Original route: use N1/C-N for a brief intended-comparison, convention and limit note on the same table.

Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

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Actual work and next action

Use S1 or your existing record to note actual evidence, missing input and next action. Preparation is not actual completion.

Actual route: the genuine teacher-assigned protocol, data and rubric replace this original paper exercise and its row count. Do not complete both. Do not begin physical work without authorization, protocol and supervision.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

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Check your product

- Original route: one table preserves ten D1 records, units, trial structure, timestamps and statuses including R08 NA/MISSING.
- Original route: the brief note names intended conventions and absent physical controls without claiming collection or causation.
- Actual route: genuine approved data/protocol/rubric replace all original rows, counts and paper checks; no duplicate work.
- Both routes: do not begin physical activity without the actual authorized supervised protocol; use genuine evidence for completion and check that Schoology shows Submitted after uploading.

Keep the limit: All original numbers are author-invented. They cannot establish any physiological outcome, device accuracy, physical control, causal effect, authorization, actual collection or successful submission.

Turn in your work

Paper preparation only. No setup, calibration, human measurement or treatment is authorized here. Actual physical work requires the teacher-approved device-specific protocol, authorization and supervision; ask for these inputs before doing it. Open the linked March 4 BI assignment and check its format; ask how this preparation should accompany the actual work. The raw-table product is preserved; simulated preparation is not an actual collected table. After uploading, check that Schoology shows Submitted.

If blocked, save locally and ask for help with the missing input or assignment access.

[Open this assignment in Schoology.](#)

Carry forward

A raw table needs units and a clear participant/trial structure; repeated rows and missing values must remain identifiable.

March 5 uses its own invented five-participant D1 statistics dataset, not these repeated V01 records or missing actual lab data. Which dataset and participant structure belong to the next calculation?

Sources and resources

[Open today's page](#)

NIST-CAL · Calibration

NIST/SEMATECH e-Handbook

<https://www.itl.nist.gov/div898/handbook/mpc/section3/mpc3.htm>

NIST-TRACE · NIST Policy on Metrological Traceability

NIST

<https://www.nist.gov/calibrations/traceability>