

Physics, Mathematics and Science Verification and Error-Checking Checklist - Prepare for a Client Discussion

Physics, Mathematics and Science | Prepare for a Client Discussion | Asset ID TJ-06-08-12

A model is only as reliable as its assumptions and data. Validate units, applicability and uncertainty before using a result outside learning or exploration.

Purpose and working method

This independent, printable companion helps you make variables, units, models and uncertainty visible in a repeatable solution while working toward one outcome: translate technical work into decisions, questions and boundaries. Use a suitable calculator or utility for computation, then use these pages to preserve meaning, assumptions, checks and decisions. A number alone is not a decision record; a useful record shows where the inputs came from, why the method fits and what would make the result unsafe or misleading.

Project snapshot	Record
Project or question	
Prepared by / date	
Decision owner	
Intended outcome	Prepare for a Client Discussion
Tool or method used	Name and version/date:
Authoritative source	Title, owner and access date:
Review deadline	

Domain readiness map

#	Input area	Current state	Trace
1	Question and hypothesis	Known / estimated / missing	Source:
2	Known values	Known / estimated / missing	Source:
3	Unknown values	Known / estimated / missing	Source:
4	Units and scale	Known / estimated / missing	Source:
5	Model assumptions	Known / estimated / missing	Source:
6	Expected range	Known / estimated / missing	Source:

Verification and Error-Checking Checklist

This working page applies the verification and error-checking checklist format to prepare for a client discussion. Complete it before polishing a conclusion. The useful evidence is plain-language summary, evidence and open choices; the governing rule is: never hide uncertainty or present an estimate as a guarantee.

Check	Independent method	Result	Pass rule
Question and hypothesis	use a check that could reveal an error	_____	_____
Known values	use a check that could reveal an error	_____	_____
Unknown values	use a check that could reveal an error	_____	_____
Units and scale	use a check that could reveal an error	_____	_____
Model assumptions	use a check that could reveal an error	_____	_____
Expected range	use a check that could reveal an error	_____	_____

Completion standard

- Write real units, dates and source owners; avoid labels such as normal, typical or standard without a definition.
- Mark estimates as estimates. Record a range when a single value would imply false precision.
- Keep an untouched copy of source data and give every working version a date or revision.
- Record contrary evidence. A workbook that only supports the preferred answer is not a reliable check.
- Remove personal, confidential or security-sensitive details that are unnecessary for the decision.

Input and Data Map

Privacy gate: minimise personal, confidential and security-sensitive information. If a value can identify a person, account, location or protected system, use an approved environment and retention rule.

#	Data element	Minimum validation	Source	Status
1	Question and hypothesis	identity and date	Owner: _____	Ready / gap
2	Known values	definition and unit	Owner: _____	Ready / gap
3	Unknown values	range and precision	Owner: _____	Ready / gap
4	Units and scale	missing-value rule	Owner: _____	Ready / gap
5	Model assumptions	consistency with peers	Owner: _____	Ready / gap
6	Expected range	fitness for the decision	Owner: _____	Ready / gap

Transformation trail

Stage	Question	Record
Raw input	What arrived before cleaning or conversion?	Location / version: _____
Cleaning	What was removed, repaired or standardised?	Rule: _____
Conversion	Which units, formats or scales changed?	Before / after: _____
Derivation	Which values were calculated from others?	Method: _____
Exclusion	Which records or conditions were left out?	Reason: _____
Final input	What exact dataset or values entered the tool?	Hash / version: _____

Spot-check sample

Sample	Original	Working value	Comparison	Decision
1	Source: _____	Prepared: _____	Difference: _____	Accept / correct
2	Source: _____	Prepared: _____	Difference: _____	Accept / correct
3	Source: _____	Prepared: _____	Difference: _____	Accept / correct
4	Source: _____	Prepared: _____	Difference: _____	Accept / correct

Prepare for a Client Discussion Action Workbook

Use this page to translate technical work into decisions, questions and boundaries. The aim is not to fill every blank; it is to expose the few facts that could change the decision. The evidence package should contain plain-language summary, evidence and open choices.

Action field	Prompt	Record
Decision to support	What choice or action will this work inform?	_____
Audience	Who must understand or approve it?	_____
Success measure	What observable result would count as useful?	_____
Decision date	When is evidence needed, and why then?	_____
Critical assumption	Which belief could reverse the conclusion?	_____
Missing evidence	What is the most important current gap?	_____
Stop condition	What result requires pause or escalation?	_____

Outcome-specific plan

Step	Required action	Record
1. Frame	Restate prepare for a client discussion as a question	Owner / due: _____
2. Gather	Collect plain-language summary, evidence and open choices	Owner / due: _____
3. Calculate	Use inputs from question and hypothesis and known values	Method / version: _____
4. Challenge	Test model assumptions and expected range	Reviewer: _____
5. Decide	Never hide uncertainty or present an estimate as a guarantee	Decision: _____

One-sentence brief

We need to decide _____ by _____. The current evidence suggests _____, but the decision could change if _____. The next owner is _____.

Assumption and Source Register

Source gate: an online result is not automatically authoritative. Record the original owner, document or dataset, publication or revision date, access date and the exact field used. Recheck time-sensitive values before publication or commitment.

ID	Item	Evidence class	Trace	Decision impact
A1	Question and hypothesis	Fact / estimate / assumption	Source: _____	Low / med / high
A2	Known values	Fact / estimate / assumption	Source: _____	Low / med / high
A3	Unknown values	Fact / estimate / assumption	Source: _____	Low / med / high
A4	Units and scale	Fact / estimate / assumption	Source: _____	Low / med / high
A5	Model assumptions	Fact / estimate / assumption	Source: _____	Low / med / high
A6	Expected range	Fact / estimate / assumption	Source: _____	Low / med / high

Units, dates and versions

Control	Review question	Record
Units	Are symbols and conversion factors explicit?	Checked by: _____
Time basis	Instant, daily, monthly, annual or lifecycle?	Basis: _____
Currency / locale	Currency, tax location and rounding rule?	Basis: _____
Version	Which tool, formula, policy or data revision?	Version: _____
Applicability	Why does the method fit this case?	Reason: _____
Exclusions	What important factor is outside the model?	Record: _____

Assumption challenge

- What direct evidence would replace the largest assumption?
- Which assumption is both uncertain and capable of changing the decision?
- Would an independent person interpret every field the same way?
- Has a current authoritative source been checked for rates, limits, laws, standards or safety boundaries?
- Who is qualified to approve this use of the result?

Scenario Comparison Matrix

Scenario work reveals whether prepare for a client discussion stays stable or depends on a narrow assumption. Change a driver deliberately, retain the same definitions and explain why each value is credible. Do not label an optimistic case as expected simply because it is preferred.

Driver	Low / adverse	Working case	High / favourable	Reason
Question and hypothesis	Conservative: _____	Expected: _____	Stretch: _____	Source: _____
Known values	Conservative: _____	Expected: _____	Stretch: _____	Source: _____
Unknown values	Conservative: _____	Expected: _____	Stretch: _____	Source: _____
Units and scale	Conservative: _____	Expected: _____	Stretch: _____	Source: _____
Model assumptions	Conservative: _____	Expected: _____	Stretch: _____	Source: _____
Expected range	Conservative: _____	Expected: _____	Stretch: _____	Source: _____

Outcome comparison

Comparison	Conservative	Expected	Stretch
Calculated result	_____	_____	_____
Time implication	_____	_____	_____
Cost or resource implication	_____	_____	_____
Quality or performance effect	_____	_____	_____
Risk and reversibility	_____	_____	_____
Evidence confidence	Low / medium / high	Low / medium / high	Low / medium / high

Sensitivity note

The conclusion changes most when _____ moves from _____ to _____. That driver is supported by _____. Before commitment, we will _____.

Verification and Decision Gate

High-stakes gate: A model is only as reliable as its assumptions and data. Validate units, applicability and uncertainty before using a result outside learning or exploration. For any consequential use, a qualified professional must verify the current authoritative source, inputs, method and limits. A completed workbook does not grant legal, financial, medical, engineering, laboratory, security, operational or safety approval.

Gate	Acceptance condition	Status	Evidence
Input trace	Every critical value has a source, date and unit	Pass / gap	_____
Independent check	A second method or reviewer could expose an error	Pass / gap	_____
Applicability	The method fits the case and stated boundary	Pass / gap	_____
Range	A plausible low and high case has been tested	Pass / gap	_____
Contrary evidence	Conflicts are recorded and explained	Pass / gap	_____
Privacy and rights	Sensitive and third-party material is controlled	Pass / gap	_____
Qualified review	Required professional or authorised review is complete	Pass / gap	_____

Decision record

Decision field	Choice	Record
Recommendation	Proceed / revise / pause / reject	Reason: _____
Confidence	Low / medium / high	Evidence: _____
Conditions	What must stay true?	Record: _____
Reversal trigger	What new evidence reopens the decision?	Record: _____
Owner and approval	Who owns the decision and its limits?	Name/date: _____

Final rule

For prepare for a client discussion, never hide uncertainty or present an estimate as a guarantee. Record the decision separately from the calculation so a later reviewer can distinguish evidence, interpretation, approval and action.

Handover, Reuse and Follow-Up

Close the record so another person can reproduce the work, understand the limits and continue prepare for a client discussion without relying on memory. Keep the smallest useful evidence package, protect sensitive information and give the final file a clear version.

Handover field	Record
Current conclusion	_____
Evidence location	Folder, record or reference: _____
Open question	_____
Decision condition	_____
Next action / owner	_____
Review date	_____
Retention / privacy	Keep until _____; access: _____

Reuse checklist

Reuse gate	Question	Status
Definitions	Are the meanings of question and hypothesis and known values unchanged?	Yes / update
Sources	Are rates, limits, data and guidance still current?	Yes / update
Context	Does the new case share the same scope and conditions?	Yes / update
Method	Is the chosen tool or method still applicable?	Yes / update
Review	Has the right qualified or authorised person checked it?	Yes / update
Version	Has the reused record received a new date and identifier?	Yes / update

30-day learning loop

- Compare the expected result with what actually happened.
- Record whether an assumption, input definition or method caused avoidable rework.
- Improve one shared field or check; do not add process that supports no decision.
- Archive the final decision, not every unnecessary draft.

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