Start with the decision, then write the test

A useful classroom test helps you decide what to explain, practise or revisit. Begin by writing the decision you want to make. For example: ‘Can learners solve a two-step equation and explain how they checked it?’ This is more useful than choosing twenty questions first and searching for a purpose afterwards. A short, focused check can reveal a specific gap, while a broader assessment needs an explicit sampling plan.

This kit provides a blueprint, question-writing checks, six worked subject examples and a marking guide. The examples cover mathematics, geography, history, computing, introductory accounting and advanced mathematics. They illustrate how to connect a question to evidence and feedback. They are not intended to be combined into a single scored test because learners may not have studied all six subjects.

Choose examples according to prior teaching and prerequisite skills. Do not infer a learner’s overall ability, diagnosis or official grade from these questions. The historical source and geographic data are invented; the accounting exercise is a simplified classroom model. No examination board or curriculum authority has approved this kit. Review every item before using it in your setting.

Write your decision: after reviewing responses, I will choose between _____ and _____.

List the knowledge and skills learners have already encountered. Exclude unfamiliar content unless learning from a source is the explicit task.

Decide how learners will receive corrections and another opportunity to use the skill. A score alone does not tell them what to do next.

Blueprint: plan coverage and marks

Use one row for each learning objective. Name the response you need, the question format, the available marks and the approximate time. Estimate time by working the question yourself and allowing for reading, planning and checking; trialling with suitable learners gives better evidence than assuming an adult’s pace will transfer.

Allocate marks to meaningful evidence rather than the number of lines written. If interpreting a source is the aim, avoid giving most marks to recalling unrelated names. If method matters, provide space for working and allocate marks for the key steps. Tell learners when explanations are required. A one-word answer cannot fairly earn marks for reasoning that the question never requested.

Total the marks and review the balance. A blueprint makes overrepresentation easier to notice, such as five near-identical arithmetic questions and only one short reasoning question. Balance depends on your stated purpose; there is no universal percentage split that makes every assessment valid.

Objective: _____ | Question: _____ | Evidence required: _____

Format: _____ | Marks: _____ | Estimated time: _____

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Format: _____ | Marks: _____ | Estimated time: _____

Total marks: _____ | Review and checking time: _____

Content deliberately excluded, and why: _____

Write questions that ask for the right evidence

Use a clear command: calculate, identify, compare, explain or justify. These commands ask for different responses. ‘Explain why the conclusion is unsupported using the table’ is clearer than ‘Discuss the data’. State units, rounding and relevant assumptions. Check whether a diagram is necessary and label it so the question remains understandable when printed in black and white.

Separate difficulty in the target skill from incidental reading difficulty. A long story can obscure a simple multiplication task. On the other hand, shortening a source too far may remove evidence needed for interpretation. Read the item from the learner’s perspective: what information is available, what can reasonably be inferred and what does the marking guide expect?

For multiple-choice items, ensure one answer is best under the stated conditions. Distractors should reflect plausible errors, not tricks based on tiny wording differences. For open responses, write at least one acceptable answer before finalising the question. If you cannot agree on what counts as evidence, revise the item or accept a wider range explicitly.

Replace vague wording: ‘What about this graph?’ becomes ‘Identify the largest measured value and give its unit.’

Check independence: does a mistake in one part make every later part impossible? Supply a follow-through value when that suits the purpose.

Check accessibility: can the response be spoken, typed or drawn without changing the skill being assessed? Follow the learner’s agreed arrangements.

Example task · 4 marks

Mathematics: solve and check an equation

Prerequisite: learners have been taught inverse operations and substitution. Question: Solve 3x + 4 = 19. Show your steps and check your value in the original equation. This question asks for both a solution and evidence of checking, so both must appear in the marking guide.

Learner response: write each equation on a new line and include the substitution check.

Marking: 1 mark for obtaining 3x = 15 by subtracting four from both sides; 1 for x = 5; 1 for substituting to show 3(5) + 4; 1 for evaluating this as nineteen and confirming equality.

Answer: 3x = 15, x = 5. Check: 3 × 5 + 4 = 15 + 4 = 19.

If a learner writes x = 12 after reaching 3x = 15, the likely issue is treating subtraction as the inverse of multiplication. Ask them to show three equal groups whose total is fifteen.

An answer of five without working earns the solution mark only under this stated scheme. Tell learners beforehand that method and checking are assessed.

Follow-up item: solve 4x − 3 = 17 and check. Answer: x = 5; 4(5) − 3 = 17. Use a later, different example to see whether the method transfers.

Example task · 4 marks

Geography: separate observations from claims

Prerequisite: learners can read a small table and distinguish a measurement from a generalisation. Fictional noon measurements on one day are Park 22°C, Station 25°C and Market 27°C. A report claims, ‘The market is always the hottest place in town.’ Question: identify the warmest measured location, calculate the range and explain whether these data support the word ‘always’.

Marking: 1 mark for Market; 1 for a range of 5°C; 1 for explaining that the measurements cover only one day/time; 1 for concluding that ‘always’ is not established by this evidence.

Accept different wording that clearly states the limitation. Do not require the exact phrase ‘insufficient data’. A learner should connect the limitation to the particular claim.

A response such as ‘No, because it might be different’ needs a more specific explanation to earn the evidence-limitation mark.

Follow-up: ask for a comparison plan using consistent times and measurement conditions on several days. This is a design question, so use a separate marking guide rather than silently adding it to the original four marks.

Feedback prompt: ‘Finish this sentence: the table supports ___ at ___, but does not tell us ___.’

This item assesses interpretation of the supplied data. It does not establish understanding of every cause of urban temperature variation.

Example task · 4 marks

History: interpret an invented source carefully

Prerequisite: learners have practised identifying a source's perspective and limits. Invented diary extract for teaching: 'When the new bridge opened, my journey to the market became shorter. Everyone in the town welcomed it.' Question: give one claim about the writer's own experience, one broader claim, and explain why a historian would seek another source before accepting the broader claim. This is not an authentic historical document.

Marking: 1 mark for identifying the shorter journey as the writer's reported experience; 1 for identifying 'everyone welcomed it' as the broader claim; 1 for explaining that one writer cannot establish every resident's view; 1 for suggesting a relevant additional source and what it could reveal.

Suitable additional evidence could include accounts from other residents describing their views, or records of objections to the bridge. Simply saying 'another source' without its purpose does not earn the final mark.

Accept answers noting that the writer's journey claim is still a report that may need corroboration. The distinction is the scope of the claim, not a guarantee that personal testimony is accurate.

Avoid awarding marks for guessing a date, place or political context that has not been supplied.

Feedback: ask learners to underline the words that make each claim narrow or broad. Then compare what another source could and could not establish.

Example task · 4 marks

Computing: trace a loop and explain a condition

Prerequisite: learners understand variables, assignment, inclusive loop limits and a remainder test. Pseudocode: set total to 0; for n from 1 to 4 inclusive, if n is even, set total to total + n; after the loop, output total. Question: write total after each iteration and explain why odd values do not change it.

Trace: n = 1 → total = ___; n = 2 → total = ___; n = 3 → total = ___; n = 4 → total = ___. Final output: ___.

Answer: totals are 0, 2, 2 and 6; final output is 6.

Marking: 1 mark for the first two trace values 0 and 2; 1 for the next two values 2 and 6; 1 for final output 6; 1 for explaining that odd values fail the even-number condition and therefore the addition is skipped.

If a learner gets ten, check whether they added every value rather than applying the condition. If they get four, check whether they replaced total with n instead of accumulating.

Follow-up: change the upper bound to six. Answer: the final total is twelve. Ask learners to predict which extra iterations change the total before tracing.

Specify that the loop includes four. Language-specific conventions such as an exclusive upper bound should not be assumed in this pseudocode question.

Example task · 4 marks

Accounting: use a simplified accounting equation

Prerequisite: learners have studied assets = liabilities + equity and the effect of an owner contribution. A fictional business begins with cash of 1,000 money units, no liabilities and equity of 1,000. The owner contributes another 200 in cash. The business then buys equipment for 300 cash. There are no other transactions. Question: state the final cash, equipment, liabilities and equity, then verify the equation. Ignore taxes and depreciation in this classroom model.

Answer: cash = 1,000 + 200 − 300 = 900; equipment = 300; liabilities = 0; equity = 1,200. Total assets = 900 + 300 = 1,200 = 0 + 1,200.

Marking: 1 mark for cash of 900; 1 for equipment of 300 and liabilities of zero; 1 for equity of 1,200; 1 for explicitly verifying the equation with the final values.

If a learner reduces equity when equipment is bought, discuss exchanging one asset for another. The purchase in this simplified example is not an immediate 300-unit expense.

If a learner calls the owner contribution revenue, distinguish financing from income earned by providing goods or services.

Follow-up: the business borrows 100 cash. Cash becomes 1,000 and liabilities become 100; equipment and equity stay unchanged. Assets of 1,300 equal liabilities of 100 plus equity of 1,200.

This example teaches a basic relationship. It is not guidance on preparing real financial statements or complying with a reporting standard.

Example task · 4 marks

Advanced mathematics: reason about a derivative

Prerequisite: learners have studied differentiation of polynomials, stationary points and completing the square. Let $f(x) = x^2 - 6x + 5$ for real x. Question: find $f'(x)$, find the stationary x-value, calculate the corresponding function value and justify whether it is a minimum or maximum.

Answer: $f'(x) = 2x - 6$. Setting this to zero gives $x = 3$. $f(3) = 9 - 18 + 5 = -4$. It is a minimum because $f(x) = (x - 3)^2 - 4$ and a real square is non-negative.

Marking: 1 mark for the derivative; 1 for the stationary x-value; 1 for -4; 1 for a valid minimum justification. Accept a positive second derivative, $f''(x) = 2$, or a correct derivative-sign argument if those methods have been taught.

Do not award the justification mark for ‘it looks like a minimum’ without a reason. A sketch can support a valid explanation if its relevant properties are established.

A learner who gives $x = 3$ as the minimum value has mixed up the input and output. Ask them to label the stationary point as the ordered pair $(3, -4)$.

Follow-up: compare $g(x) = x^2 - 6x + 8$. It has the same stationary x-value and a minimum value of -1. Explain the vertical shift of three units.

Mark consistently and turn results into feedback

Before marking a whole group, review several different responses against the scheme. Look for correct alternative methods and unexpected but valid interpretations. If an item is genuinely ambiguous, adjust the scheme fairly for everyone rather than penalising learners for reading it differently. Record the adjustment so a second marker can follow it.

Decide in advance whether later method marks can be earned after an earlier arithmetic error. This is often called follow-through marking. It can reveal reasoning despite a slip, but it must fit the objective. Do not silently count the same error several times. Equally, do not award a method mark when the method itself is the misunderstanding being checked.

Report useful evidence at the objective level. ‘You identified the warmest measured place; now explain why one day cannot establish always’ gives a next action. ‘Three out of four’ is a summary, not the action. Let learners respond to the feedback through a correction, explanation or related task. Review whether the later work addresses the original gap.

For each objective: evidence seen _____; uncertainty remaining _____; next task _____.

For a second marker: compare a small shared sample, discuss disagreements and document acceptable alternatives.

Do not convert this kit’s sample scores into grade boundaries or claims of standardised attainment. It has not been calibrated for those uses.

Preflight checklist before learners see the paper

Read the finished paper in its final printed layout, not only in the editor. Check that a page break has not separated a question from its table, that notation is legible and that answer space matches the response expected. Have another adult solve the questions where possible; independent checking can reveal assumptions the author no longer notices.

Check the answer key as carefully as the paper. Recalculate arithmetic, test code traces, verify supplied facts and make sure every available mark has a stated basis. Confirm that examples are labelled as invented where appropriate. For sourced material, verify permission and attribution rather than assuming that a public webpage can be copied in full.

□ Every question matches the blueprint and previously taught material.

□ Instructions, units, rounding and permitted aids are explicit.

□ Marks add up and the advertised total agrees with the marking guide.

□ Alternative correct answers and follow-through rules are documented.

□ Learners receive adequate space and the agreed access arrangements.

□ Student copies do not accidentally contain the answer key.

□ Timing has been reviewed and a correction or revisit is planned.

□ The printed version has been checked at its intended paper size.

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For further work, explore the WorksheetWise test designer. It provides a starting point for assembling and reviewing practice questions; saved-exam printing is a member feature. Review the current pricing and feature details before subscribing. The free kit and its planning templates remain available independently of membership.

When adapting this kit into a new assessment, replace examples only after writing the target objective and answer expectations. Keep the blueprint alongside the finished paper so future revisions preserve the intended coverage. A reusable design process is more useful than repeatedly changing numbers in a test whose purpose is unclear.

Resource page: https://www.worksheetwise.org/resources/assessment-design-kit

Test designer: https://www.worksheetwise.org/en-us/tools/test-designer

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Learner copy · 4 marks

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Name: _____ Date: _____

Show your response and any required working below.

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