

Creating Lesson Plans, Quizzes, Worksheets and Case Studies with AI

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Learning objective

The aim of this material is to help teachers use AI to draft lesson plans, quizzes, worksheets and case studies faster without losing pedagogical quality. By the end of the material, teachers will be able to write a pedagogical brief that specifies the learning goal, vocational context, learner level, prior knowledge, activity format and assessment needs; use it to generate drafts of lesson plans, quizzes, worksheets and case studies; and check, adapt and improve these drafts so that they are professionally correct, relevant and suitable for their learners.

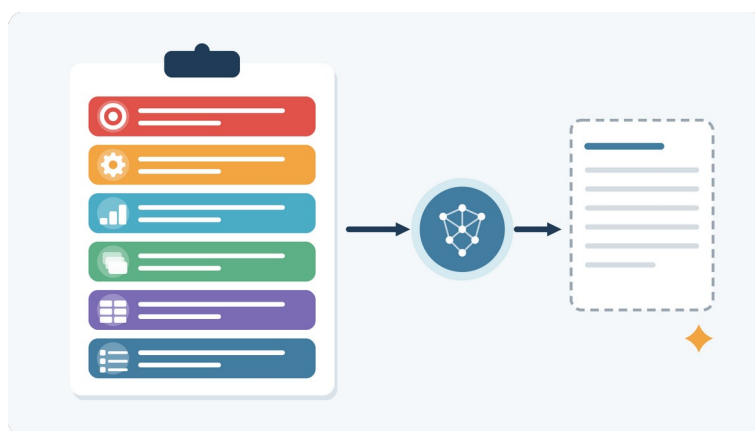
Introduction

The author of this material compares large language models to an excavator: where twenty workers with shovels once dug a trench for days, one operator with a machine now does it in hours. AI multiplies intellectual work in a similar way. A first draft of a lesson plan, a bank of test questions or a realistic case study can be ready in minutes.

But the excavator does not decide where to dig. The teacher sets the goals, knows the learners and the workshop, and answers for the quality of what reaches the classroom. A useful rule of thumb is to use AI for tasks you could also do yourself – so that you can judge the result. General prompting techniques are covered in M1-T1-MLC4; why AI output must always be checked is explained in M1-T1-MLC3.

The pedagogical brief: what the AI needs to know

A request such as “Make a worksheet on changing a wheel” forces the model to guess almost everything, and the result will be generic. A good brief contains six elements:



A complete brief – goal, vocational context, level, prior knowledge, format and assessment – turns a generic answer into a usable draft

- **Learning goal:** what learners should be able to do afterwards, written as an observable learning outcome with an action verb. “Know about

wheels” is not a goal; “tighten the wheel nuts in the correct sequence to the specified torque” is.

- **Vocational context:** the trade, the real workplace situation, the equipment available in the school workshop, and the relevant rules and safety requirements.
- **Learner level:** year, age, language level, group size and any special needs.
- **Prior knowledge:** what learners already know and can do, and their typical misconceptions – so that the material is neither too easy nor too hard.
- **Activity format:** lesson plan, quiz, worksheet or case study; duration, individual or group work, paper or digital, length.
- **Assessment needs:** diagnostic, formative or summative purpose; what evidence shows that the goal has been reached; answer key, marking scheme or criteria.

Example of a pedagogical brief

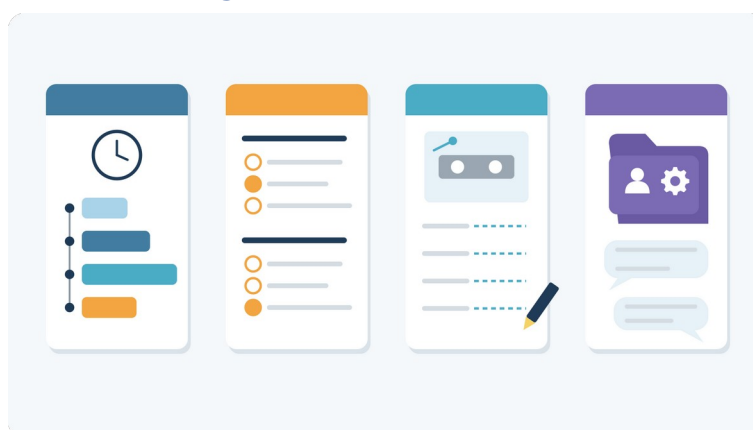
Topic: changing a wheel. Goal: after the lesson, learners can change a wheel safely under supervision, tighten the wheel nuts in a diagonal sequence with a torque wrench to the manufacturer’s value, and check tyre pressure.

Context: car mechanic training, school workshop with two lifts, trolley jacks, axle stands and torque wrenches. **Level:** first-year apprentices, aged 15–16, group of 12. **Prior knowledge:** basic hand tools and workshop safety; they have not used a torque wrench yet.

Format: a 90-minute lesson plan with timed phases, demonstration and practice in pairs, plus a one-page worksheet. **Assessment:** formative – an observation checklist for the practical task and five short questions at the end, with an answer key. Use only the attached data sheet for technical values.

Attach what the AI cannot know: the relevant part of the curriculum, a textbook chapter, the manufacturer’s data sheet or a previous worksheet that worked well. A good example is often worth more than a long description.

Four types of teaching material



Lesson plan, quiz, worksheet and case study – each needs a slightly different request

Lesson plans

Ask for a timed plan with phases (activation, demonstration, guided practice, independent practice, closure), teacher and learner activities, materials, safety

notes, a differentiation idea and a short check of understanding at the end. AI suggests structures and methods – station work, flipped learning, problem-based tasks – quickly; the teacher knows what is realistic in their workshop and in 45 or 90 minutes.

Quizzes

For classic tests on paper or on a learning platform, specify the number and type of items (multiple choice, true/false with justification, matching, short answer, calculation) and the cognitive level (recall, understanding, application). Ask for distractors based on typical misconceptions, an answer key with explanations and, for each item, the learning goal it measures. Interactive formats with automatic feedback are covered in M4-T1-MLC4.

Worksheets

Worksheets guide practice: labelling parts, putting steps in order, filling in a measurement log, solving calculations or looking up values in the manufacturer's documentation. Ask for short instructions, tasks from simple to complex, and a version with more support. Ask the AI to check calculations in the answer key with code, and use your own photos or drawings: AI-generated technical images are often inaccurate.

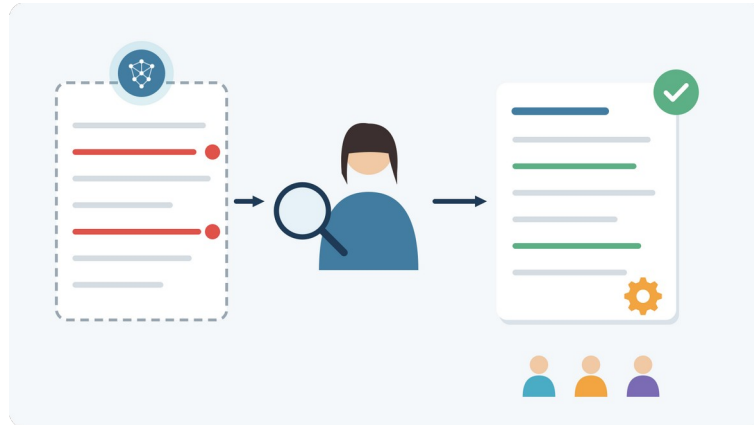
Case studies

A case study presents a realistic workplace situation – a customer complaint, a fault, a safety incident, a planning dilemma – and asks learners to analyse, decide and justify. For example: *“Two days after a tyre change, a customer returns: one wheel nut has come loose.”* Learners look for possible causes, the correct procedure and the right way to talk to the customer. Ask for open questions of increasing difficulty and a teacher's note with a model solution and assessment criteria. Use invented names and no real personal data.

From AI draft to classroom-ready material

An AI draft is a starting point. Before it is used, the teacher checks and adapts it:

- **Professional correctness:** facts, values, terminology, standards and safety steps. Check every number against the manufacturer's data or the textbook.
- **Alignment:** do the activities and test items really serve the learning goal? Does the quiz assess what was practised?
- **Level and time:** is the language readable for the learners, are terms explained, and is the amount realistic in the time available?
- **Local context:** the equipment of your workshop, correct Hungarian terminology, the curriculum and the school's rules.
- **Fairness and inclusion:** stereotypes in names and roles, accessible layout, examples that are relevant to the learners.
- **Data protection and copyright:** no personal data about learners in prompts; upload textbooks or other protected materials only where this is permitted.

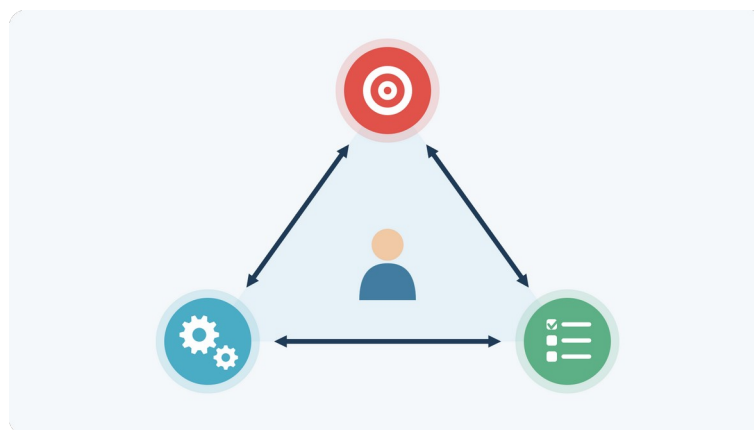


The teacher reviews the AI draft, corrects errors and adapts it to the learners before classroom use

Improve the draft with targeted follow-up requests instead of starting again: “Replace the distractors in question 4 with typical misconceptions of first-year apprentices”, “Shorten each instruction to one sentence”, “Add a safety check before the vehicle is lifted”, “Make a version with more support for learners with reading difficulties”. The final version – and the responsibility for it – belongs to the teacher.

Efficiency with professional control

The key quality criterion for any AI draft is alignment: the learning goal, the learning activities and the assessment must point in the same direction. AI easily produces activities that look attractive but do not serve the goal, or quiz items that test only recall when the goal is a practical skill.



Learning goal, activity and assessment must fit together – the teacher checks this alignment in every AI draft

- **Build a reusable brief** for your subject and save prompts that worked; next time only the topic and the goal change.
- **Generate a coherent set:** in one conversation, the same brief can produce the lesson plan, worksheet, quiz and case study, so that they fit together.
- **Reinvest the time saved:** draft faster, but do not shorten the professional review.
- **Be transparent:** tell colleagues and, where appropriate, learners that a material was prepared with AI support and checked by the teacher.

Takeaways for teachers

- Start with a brief: learning goal, vocational context, learner level, prior knowledge, activity format and assessment needs.
- Attach reliable sources and good examples.
- Treat every output as a draft: check facts, values and safety steps.
- Improve drafts with targeted follow-up requests.
- Check the alignment of goal, activity and assessment.

References

- Anderson, L. W. & Krathwohl, D. R. (eds.) (2001): A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. Longman.
- Biggs, J. & Tang, C. (2011): Teaching for Quality Learning at University. 4th ed., Open University Press.
- Farkas, É. (2017): Segédlet a tanulási eredmények írásához a szakképzési és felnőttképzési szektor számára [Guide to writing learning outcomes for vocational and adult education]. Oktatási Hivatal.
- European Commission (2022): Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators. Publications Office of the European Union.
- UNESCO (2023): Guidance for generative AI in education and research. UNESCO, Paris.
- Lengyel, Zs. (2026): Introduction to the concepts of artificial intelligence; Concrete applications for content generation. VITA training presentations.

Links

- EC ethical guidelines on AI and data for educators: op.europa.eu
- UNESCO guidance for generative AI in education: unesco.org
- Farkas, É.: Guide to writing learning outcomes (in Hungarian): mek.oszk.hu
- DMC platform for VET teachers: dmc.prompt.hu

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