

Construct Your Skills

Context:

The Active Learning Toolkit has been developed to support Professional Construction educators in creating lessons that mirror the demands of real construction environments and making theory sessions more active. The toolkit brings together a range of tried-and-tested strategies designed to promote engagement, independence, and deeper understanding among learners. Active learning involves students in doing things and thinking about what they are doing.” (Bonwell & Eison, 1991). The toolkit has been designed to show a range of tools which can be listed promptly into sessions, modelling themes which align with the construction industry.

Active learning is particularly effective in construction education because learners must combine practical skill, technical knowledge and professional judgement. Evidence-informed practice highlights that when learners actively organise information, solve problems, and reflect on their decisions, they retain knowledge more effectively and develop behaviours expected in industry. This approach also strengthens Assessment for Learning (AfL), as learners’ thinking becomes visible and teachers can respond to misconceptions in real time.

The toolkit includes structured activities such as Tarsia puzzles, Thunks, Graphic Organisers, and Revision Clocks. Each tool supports cognitive challenge and practical application, encouraging learners to take ownership of their learning and build the independence when learning in sessions.

The Technique/Method:

Glossary Matching	A structured vocabulary activity where learners match key technical terms to their correct definitions. This supports the development of professional language, reinforces accuracy in communication, and strengthens understanding of construction-specific terminology. It is particularly effective for embedding new concepts before practical application.	Tarsia	A puzzle-based activity where learners assemble interlocking shapes by correctly matching related pieces of information. Tarsia tasks promote retrieval practice, reinforce connections between concepts, and encourage teamwork. They are particularly effective for sequencing processes, identifying relationships, and revising key knowledge.
Thunks	Short, thought-provoking statements or questions designed to stimulate curiosity, reasoning, and discussion. Thunks encourage learners to think beyond procedural knowledge and consider broader principles, values, or interpretations relevant to construction practice, such as decision-making, ethics, or problem-solving.	Retrieval Map	A visual tool that prompts learners to recall and organise information from memory without prompts. Retrieval maps strengthen long-term retention by encouraging learners to reconstruct knowledge independently, making them ideal for revisiting safety procedures, construction methods, or technical theory.
Gamification	Untitled App The use of game-like elements, to increase motivation and engagement. In construction education, gamification helps learners practise skills, recall information, and collaborate in a dynamic, low-stakes environment that mirrors real-world problem-solving.	Concept Mapping	A diagram-based activity where learners visually connect ideas, processes, or components to show how they relate. Concept maps help learners understand complex systems, identify dependencies, and see the “bigger picture” within construction tasks. They support deeper understanding by making thinking visible and highlighting misconceptions.

See the Technique/Method in Action:

[Online Flipbook](#) ← Access the toolkit here.

Top Tips:

Glossary Matching	<ul style="list-style-type: none"> • Offer three formats: research-based, kinaesthetic sorting, or paper-based matching to suit different learners. • Include industry specific terminology to strengthen professional language. • Revisit the same glossary over time to build long-term retention.
Thunks	<ul style="list-style-type: none"> • Keep prompts vocationally relevant so learners connect thinking to real construction practice. • Embed exam-linked concepts to deepen understanding of assessment content. • Invite employers or industry partners to contribute thunks for authenticity.
Tarsia	<ul style="list-style-type: none"> • Use puzzles to revise exam answers, key processes or safety steps. • Include pieces that require recalling maths equations, measurements, or conversions used in skilled tasks. • Add key terms from professional construction to strengthen technical vocabulary.

Dig Deeper:

- A Reflection on the Current State of Active Learning Research (2024) <https://files.eric.ed.gov/fulltext/EJ1446374.pdf>
- Refining Active Learning Design Principles Through Design-Based Research (2022) <https://redesign-education.org/publications/refining-active-learning-design-principles-through-design-based-research>
- Enhancing Active Learning for Construction & Surveying Students (2024) <https://www.mdpi.com/2227-7102/14/7/703>

Monitoring Progress and Impact:

Teachers can monitor progress by...			
Glossary Matching	<ul style="list-style-type: none"> • Checking improved accuracy in matching terms over time (e.g., fewer errors each attempt). • Reviewing learners' use of correct technical vocabulary in written and practical tasks. • Gathering quick student feedback on which terms they now feel confident using. • Observing whether learners apply terminology correctly during workshop demonstrations. 	Tarsia	<ul style="list-style-type: none"> • Checking how quickly and accurately learners complete the puzzle as knowledge improves. • Reviewing the quality of discussion as learners justify why pieces fit together. • Comparing puzzle performance with exam-style questions on the same topic. • Using peer observation to see how effectively the activity supports collaboration.
Thunks	<ul style="list-style-type: none"> • Listening for deeper reasoning, justification, and use of vocational examples in learner responses. • Using peer observations to see whether thunks increase engagement and discussion quality. • Reviewing reflective journals or blogs where learners explain their thinking. • Tracking improvements in confidence when learners explain decisions in practical tasks. 	Retrieval Map	<ul style="list-style-type: none"> • Comparing early and later maps to see growth in detail, accuracy, and structure. • Identifying recurring gaps that indicate where further teaching is needed. • Using maps as evidence of long-term retention before assessments. • Asking learners to self-assess confidence in recalling key processes or safety steps.
Gamification	<ul style="list-style-type: none"> • Tracking scores or challenge outcomes over time to see improvement in recall or accuracy. • Observing increased participation, especially from quieter learners. • Collecting quick exit tickets on how the game helped them understand content. • Comparing performance in gamified tasks with later assessments or practical work. 	Concept Mapping	<ul style="list-style-type: none"> • Reviewing how learners' maps become more detailed and interconnected over time. • Checking whether learners can explain the relationships they have drawn. • Using concept maps as part of formative assessment to identify misconceptions. • Comparing maps with practical performance to see if understanding transfers to action.