Practice guide for primary and secondary schools

Develop techniques and practices

Australian Education Research Organisation

Teach explicitly

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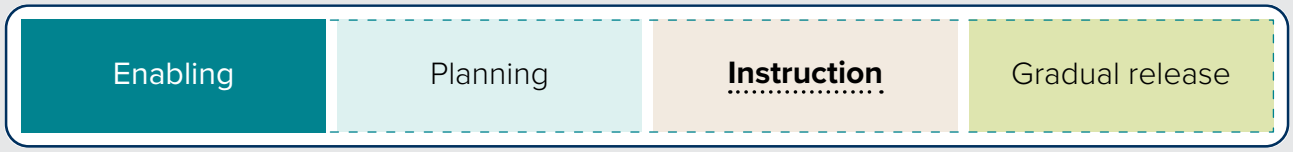
Our report on How Student Learn Best shows that learning is optimised through a structured and sequenced approach to explicitly teaching new content. Introducing new information is most effective when teachers break it down and teach it explicitly using explanation, demonstration and modelling, especially when students are new to that learning area.[1]

This practice guide will help you understand ways to:

- explain, demonstrate and model the content of learning so students can practise and acquire new knowledge and skills
- minimise the risk of cognitive overload that could interfere with students' retention of new knowledge and skills
- support students in drawing on their foundation of knowledge and skills to build a deeper understanding, before undertaking more complex tasks with less guidance.

Teach chunks of new information explicitly with explanation, demonstration, and modelling (*Teach explicitly*) is one of 18 interconnected practices identified in our Teaching for How Students Learn model of learning and teaching. This practice sits in the **Instruction** phase, which focuses on managing students' cognitive load as they process and acquire new learning. This practice is interconnected with:

- **Enabling**, which focuses on positive, respectful relationships in a culturally safe, learning-focused environment
- **Planning**, which focuses on developing and using a sequenced and structured plan for the knowledge and skills students will acquire
- **Gradual release**, which focuses on maximising students' opportunities to retain, consolidate and apply their learning.



Understanding this practice

These examples demonstrate what teaching chunks of new information explicitly with explanation, demonstration and modelling might look like in the classroom, and potential misapplications in practice.

What it is

- Teaching new information explicitly and at an appropriate pace.
- Moving on to the next chunk of new information once students have mastered component tasks.
- Demonstrating and modelling how to complete a task for students, and providing appropriate scaffolding.
- Providing regular opportunities for students to practise what they're learning during a lesson.

What it isn't

- Teaching new information too slowly or too quickly for the needs of students in the class, and the nature of the task.
- Moving on to new information without students having mastered the prior task.
- Setting tasks that require application of new or developing knowledge and skills without explicit teaching and modelling, or removing scaffolding too soon after teaching students how to complete a task.
- Spending most of the lesson explaining, demonstrating or modelling without giving students the opportunity to practise for themselves.

The importance of teaching explicitly for effective teaching and learning

Key points from the research

- Working memory can quickly become overloaded if too much information is presented too quickly. During cognitive overload, there's a risk new information won't be transferred to long-term memory, and won't be connected to current knowledge, and so won't contribute to students' understanding.[2]
- Chunking information helps manage cognitive load. 'Chunking' is the practice of breaking complex concepts, strategies or skills into smaller, more manageable components.[3] When chunks are taught in a logical sequence of small steps, it helps students build on what they already know, understand and can do, and retain what they're learning for future use.[4]
- Learning new information happens most effectively and efficiently when teachers provide explicit guidance so students aren't left to construct meaning or discover new knowledge themselves.[5]

Key strategies and techniques

There are a range of strategies and techniques you can use to teach chunks of new information explicitly with explanation, demonstration and modelling. This section describes those key strategies and techniques (see summary in Figure 1), including what they might look like in the classroom.

Figure 1: Key strategies and techniques to teach explicitly

Key strategies	Key techniques
Break down complex skills and knowledge into smaller instructional tasks	Analyse the intended learning Sequence the chunks of learning Move between guided and independent practice to support students' attainment of mastery at different paces
Fully explain what students need to learn	Link subject matter to learning objectives and success criteria Explain new information clearly and concisely Use an appropriate pace
Demonstrate and model what students need to learn	Demonstrate and think aloud Model using worked examples Provide examples and non-examples

Break down complex skills and knowledge into smaller instructional tasks

Analyse the intended learning

Analyse the intended learning and break the learning into small, manageable components, noting that some learners may require learning to be further broken down into smaller components than others.

Sequence the chunks of learning

Sequence these components so students can learn step by step. Planning a sequential scope and sequence – ideally with a consistent, whole-school approach – can guide the breaking up and sequencing of content into manageable amounts that can be taught at an appropriate pace and in a meaningful order.

Move between guided and independent practice to support students' attainment of mastery at different paces

At times, it may be necessary to move backwards and forwards between providing instruction, guiding practice and providing opportunities for independent practice. A useful guide is to aim for 80% of students providing correct answers during guided practice before moving those students to independent practice. Offer intensified support for students who are yet to grasp the learning, which may involve reteaching, and referring students for additional small group or individual intervention delivered with more repetitions. Regular progress monitoring is important until students have mastered the content. Once students have demonstrated their understanding, provide opportunities for independent practice so all students can use and apply what they've learned for deeper learning. This approach provides the opportunity for students to attain mastery at differing paces.

Fully explain what students need to learn

Link subject matter to learning objectives and success criteria

Communicate learning objectives and success criteria for each lesson using student-friendly language and clearly defined terminology, so students know and can understand what they're intended to learn, and how it relates to what they already know.

Explain new information clearly and concisely

Provide clear, concise and unambiguous explanations of key concepts, strategies or skills. Use consistent, well-defined language that matches the key vocabulary students need to learn, and that builds on or aligns with students' prior knowledge. Limiting unnecessary information helps students focus and manage cognitive load during learning.

Use an appropriate pace

Use an appropriately brisk pace, tailored to the needs of students in the class, as well as the complexity of the task. Set a pace that will allow students to move from listening and observing, to engaging with guided practice tasks that prompt them to think about and try out what they're learning.

Demonstrate and model what students need to learn

Demonstrate and think aloud

Guide students through content using step-by-step demonstrations, narrating the thinking or decision-making process needed to complete relevant tasks or procedures.

Model using worked examples

A worked example shows or models all the steps required to complete a task or solve a problem. It can be used to clearly and concisely demonstrate how to complete a task. Worked examples can gradually introduce different elements of the task or show alternative ways of completing it. As students become more expert, remove steps from worked examples and replace worked examples with independent problem-solving or decision-making. Students can be asked to identify and explain what steps are missing from examples during checks for understanding.

Provide examples and non-examples

Comparing and contrasting examples and non-examples is a useful technique to pre-empt likely misconceptions, and to provide the contextual information that students need to help them recognise when and how to apply their learning to future tasks.

Developing your practice

Consider what's informing your current practices, expectations and beliefs. Use these questions to reflect, make a plan to develop your practice and seek feedback to monitor the impact for your students.

- When you teach new information how do you:
  - support students to draw on their existing knowledge to build deeper understandings?
  - explain, demonstrate and model the content?
  - sequence chunks of new learning so that students can learn step by step, and grasp foundational knowledge before moving on to less guided practice?
- How does your teaching approach help to manage the risk of students experiencing cognitive overload?
- Review the 4 capabilities in our rubric on explicit instruction, noting the connection between breaking up learning into chunks and being able to communicate learning objectives effectively. How is this reflected in your current practice? What area might be an important focus for your next professional learning goal?
- What would others (peers, students, leaders) notice about your approach to teaching new information? What might they notice you do, create or say to break up and sequence new information, and explain, demonstrate and model the content? How could you invite and use their feedback to strengthen your approach?

Further reading

Martin, A. J., & Evans, P. (2018). Load reduction instruction: Exploring a framework that assesses explicit instruction through to independent learning. *Teaching and Teacher Education: An International Journal of Research and Studies*, *73*(1), 203–214. https://doi.org/10.1016/j.tate.2018.03.018

This paper explains how teachers can help students manage their cognitive load during the initial stages of learning, and then, as fluency and automaticity develop, how students can be encouraged to engage in guided independent learning.

Sweller, J., van Merrienboer, J., & Paas, F. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, *10*, 251–296.

This seminal literature review provides an overview of cognitive load theory – what it is, how it relates to the human brain, and the implications of cognitive load theory for instructional design.

Endnotes

1 Archer, A. L., & Hughes, C. A. (2011). *Explicit instruction: Effective and efficient teaching*. Guilford Press.

2 Centre for Education Statistics and Evaluation. (2017). *Cognitive load theory: Research that teachers really need to understand*. NSW Department of Education. https://education.nsw.gov.au/about-us/educational-data/cese/publications/literature-reviews/cognitive-load-theory.html

3 Hughes, C. A., Morris, J. R., Therrien, W. J., & Benson, S. K. (2017). Explicit instruction: Historical and contemporary contexts. *Learning Disabilities Research & Practice*, *32*(3), 140–148. https://doi.org/10.1111/ldrp.12142

4 Rosenshine, B. (2012). Principles of instruction: Research-based strategies that all teachers should know. *American Educator*, *36*(1), 12–19. https://www.aft.org/ae/spring2012/rosenshine

5 Archer, A. L., & Hughes, C. A. (2011). *Explicit instruction: Effective and efficient teaching*. Guilford Press.