

The Science of Learning and the Seven Steps

The Science of Learning provides current and relevant information on how students learn, and how teachers can help them learn better. These principles of learning have informed the development of Seven Steps training and resources to ensure that our approach empowers teachers, engages students and improves writing results.

Sometimes, teachers make assumptions about how students learn based on their own experiences and what feels right to them; however, it's important to challenge these assumptions. For example, asking students to write a whole story before they learn the skills they need in isolation is setting them up to fail. Based on the principles of cognitive science, Seven Steps provides a proven approach that helps students of all abilities learn how to write more effectively, not just for NAPLAN but for life.

The Seven Steps program is underpinned by best-practice pedagogy:

- Chunk large tasks
- Repetition builds muscle memory
- Think first, write second
- Verbal is vital
- Consistency creates change.

This document gives an overview of how these key principles align with the Science of Learning.

Science of Learning	How does Seven Steps use this?
How do students understand new ideas?	
<p>Students learn new ideas by reference to ideas they already know.</p>	<p>Seven Steps breaks down writing into seven key techniques that professional authors use. Students focus on one technique at a time, which allows them to understand, practise and master each individual skill before they write a whole text. Taking small, manageable steps reduces the cognitive load and makes writing fun and achievable for all ability levels.</p>
<p>To learn, students must transfer information from working memory (where it is consciously processed) to long-term memory (where it can be stored and later retrieved). Students have limited working memory capacities that can be overwhelmed by tasks that are cognitively too demanding. Understanding new ideas can be impeded if students are confronted with too much information at once.</p>	<p>Our resources follow the Gradual Release of Responsibility model – I do, We do, You do – to explicitly teach and consolidate students' understanding of the key writing skills. Students learn the similarities and differences between text types so they can draw on existing knowledge when tackling new writing tasks.</p>
<p>Cognitive development does not progress through a fixed sequence of age-related stages. The mastery of new concepts happens in fits and starts.</p>	<p>There are resources to model and practise the techniques, scaffold students' learning, provide explicit feedback and gauge understanding. The resources are carefully sequenced to ensure that students are learning and building on their knowledge year on year.</p>
How do students learn and retain new information?	
<p>Information is often withdrawn from memory just as it went in. We usually want students to remember what information means and why it is important, so they should think about meaning when they encounter to-be-remembered material.</p>	<p>Repetition is important to consolidate students' understanding and help them remember content over the long-term. Students practise each skill until they have mastered it and it goes into muscle memory. Seven Steps provides a curated selection of high-quality resources designed to deepen students' understanding of each technique and give them plenty of practice applying what they have learnt in their writing.</p>
<p>Practice is essential to learning new facts, but not all practice is equivalent.</p>	
How do students solve problems?	
<p>Each subject area has some set of facts that, if committed to long-term memory, aids problem-solving by freeing working memory resources and illuminating contexts in which existing knowledge and skills can be applied. The size and content of this set varies by subject matter.</p>	<p>Seven Steps develops students' understanding of the structure and features of different text types. Students apply this knowledge to create unique and engaging texts for different audiences and purposes.</p>
<p>Effective feedback is often essential to acquiring new knowledge and skills.</p>	<p>Seven Steps also establishes a common language and helps teachers provide explicit, actionable feedback on students' work. Students develop their critical and creative thinking skills when revising and improving their work using the techniques they have learnt. They also learn to give feedback on each other's work using Seven Steps terminology and ultimately to self-assess their own work.</p>

Science of Learning	How does Seven Steps use this?
<p>How does learning transfer to new situations in or outside of the classroom?</p>	
<p>The transfer of knowledge or skills to a novel problem requires both knowledge of the problem's context and a deep understanding of the problem's underlying structure.</p>	<p>Seven Steps uses a diverse range of exemplars to model the techniques and show students what great writing looks like. Students can identify and analyse the techniques an author has used and then experiment with those techniques in their own writing. They can also adapt the techniques across different text types and for effect.</p>
<p>We understand new ideas via examples, but it's often hard to see the unifying underlying concepts in different examples.</p>	<p>This knowledge not only improves students' writing, it also enhances students' understanding of the texts they read. Essentially, students learn to read like a writer and write like a reader, which sets them up for success in the classroom and beyond.</p>
<p>What motivates students to learn?</p>	
<p>Beliefs about intelligence are important predictors of student behaviour in school.</p>	<p>The Seven Steps approach not only improves students' writing results, students' confidence and engagement in writing lessons soars. By making writing fun, achievable and authentic, Seven Steps caters to a diversity of needs, ages and learners, including EAL/D students, gifted, ASD and ADHD students, and reluctant writers.</p>
<p>Self-determined motivation (a consequence of values or pure interest) leads to better long-term outcomes than controlled motivation (a consequence of reward/punishment or perceptions of self-worth).</p>	<p>Seven Steps classrooms cultivate a culture of engagement, creating a safe space for students to explore ideas, experiment with different writing styles and find their unique voice. Students develop clear and explicit authorial writing goals and enjoy a sense of achievement when building their writing skills through small manageable tasks.</p>
<p>The ability to monitor their own thinking can help students identify what they do and do not know, but people are often unable to accurately judge their own learning and understanding.</p>	
<p>Students will be more motivated and successful in academic environments when they believe that they belong and are accepted in those environments.</p>	
<p>What are common misconceptions about how students think and learn?</p>	
<p>Students do not have different "learning styles." Humans do not use only 10% of their brains. People are not preferentially "right brained" or "left brained". Novices and experts cannot think in all the same ways. Cognitive development does not progress via a fixed progression of age-related stages.</p>	<p>Seven Steps demonstrates that like any skill, creativity can be taught and the more students' practice the easier it gets. Regular, consistent practice develops students' writing skills, builds their confidence and creates lasting change. What's more, you don't have to be a literacy guru to teach great writing. With this simple, proven approach every teacher can help their students realise their full potential.</p>