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*Reproducible pages are in italics.*



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# Introduction

In the days of one-room schoolhouses, there were no standards; teachers invented the curriculum. By the 20th century, teachers were asked to follow curriculum guides. As they worked tirelessly to deliver their instruction, wanting only to ensure every student was succeeding, teachers often dropped the lightly used guides into the bottom desk drawer.

More recently, each state created its own standards so that its teachers could have consistent goals. However, across the states, there was little agreement and even less consistency. Each state did its own thing; the university and career readiness of secondary school graduates in one state varied greatly from that of other states. A look back at a prior round of standards uncovers a second deficiency. Because there were no adequate tools to test the thinking elements that were included in these earlier standards, states bought or prepared their own tests based on what was “testable” in the standards. Instead of testing the highest expectations of rigorous student cognition, test makers gravitated to the lowest common denominator. Their tests looked to the facts of information that could be measured. Because assessment drives instruction and National Assessment Program – Literacy and Numeracy (NAPLAN) procedures rewarded high test scores, it wasn’t long before schools, aided by publishers and their test companies, drove instruction into the land of test prep: fill-in-the-blanks were substituted for guided practice; scripts were created with methods that directed whole-class memory practices; and time was subtracted from the curriculum for day upon day of pretest practice. Very little time was left for critical thinking and problem solving in the daily classroom regimen.

In the first decade of the 21st century, multiple studies from such organisations as the American Management Association, National School Boards Association, National Education Association, McGraw Hill Research Group, the National Governors Association, the American College Testing Service, the Partnership for 21st Century Skills, and the Council of Chief State School Officers began to call for more rigorous, relevant, and results-directed curricula and instruction reforms that would return the four Cs – critical thinking, creative problem solving, collaboration

and communication – to daily instruction. Prominent educational authors such as Linda Darling-Hammond, Tony Wagner, Charles Fadel and Howard Gardner began to shout a common message. Globalisation, they repeated, is demanding a drastically upgraded education. Burgeoning global economics have raised the level of schooling available to students in poor, underdeveloped countries to heights that are now threatening the 20th century excellence of Australian schools. The studies argued that more of the same basics would not be sufficient to change the course. Any answer must enable our nation to meet global economic challenges with an educational response that will stimulate students to continue thriving at the top (Partnership for 21st Century Skills, 2011).

In this century's second decade, the creation of a consistent, more rigorous set of national standards was a first response to the many cries for a substantive and balanced 21st century reform. The Australian Curriculum describes the learning entitlement of students as a foundation for their future learning, growth and active participation in the Australian community. This new iteration calls for teachers to prepare students with rich content knowledge and relevant thinking skills essential for success after secondary school in the 21st century. It eschews those low-expectation standards that claim that memorisation of facts provides a sufficient education for succeeding in this complex new world.

The beat, however, goes on. The Programme for International Student Assessment (PISA) test that waved high the flag signalling the start of this closely watched global education comparison raised the ante with the publication of its frameworks for the 2012 tests. In addition to exams in literacy and mathematical problem solving, 2012 will initiate online exams of cross-curricular problem solving and financial literacy. By 2013, the 30 or more nations participating will be ranked, as in the past, against each other. As seen in its announcement of the tests, the cross-curricular problem-solving test will highlight ill-defined real-world problems at four levels of difficulty (Programme for International Student Assessment [PISA], 2012).

This is not the only red flag that the international competitions are likely to intensify in years to come. Many nations are working assiduously to improve their standing as global education leaders. Australia has been one of the highest performing nations on past PISA exams but performance has declined between 2006 and 2009 in all three areas of Reading, Mathematics and Science. We began our improvement task soon after the first PISA results appeared. Our major population states – South Australia, New South Wales and Queensland – have prepared statewide programs with the aim of improving best classroom practice and results. South Australia's Department of Education and Children's services spent the last six years producing two leadership documents to guide schools with a comprehensive and detailed *Teaching and Effective Learning Framework*. The documents describe and provide



tools for principals and teachers to collaborate in the development of classrooms pushed by high-quality best practices that promote the types of teaching and learning reflected in PISA's problem-solving emphasis (Atkins & Fisher, 2010, 2011).

The goal of the Australian Curriculum grows out of the 2008 Melbourne Declaration on Educational Goals for Young Australians. It is intended to support the equitable development of successful, creative, independent learners who have the essential skills, knowledge and capabilities to thrive and compete in a globalised world and in the information rich workplaces of the 21st century. In order to help today's schools prepare all students to be university and career ready with rich and rigorous 21st century skills, the challenge is clearly based in answering the question, How can schools best take advantage of the standards in improving classroom instruction and curriculum aligned to 21st century demands? The answer, as noted, cannot be more of the same with content regurgitation serving as best practice. If students are to become productive problem solvers, sound decision makers and creative innovators as called for by the many reports and educational experts, educators must include the explicit development of those complex thinking skills as the action antecedents to the stated content. Otherwise, the educational community will repeat the same mistakes made with its first move to a standards-based curriculum – namely, the creation of lofty and noble content standards assessed at the lowest levels of learning with classroom instruction reduced to test prep with skill-and-drill practice exercises that undermine the real goals of deep thinking about rich and rigorous content. Such a response certainly will not meet the high expectations crucial for today's students who must learn and work in the global world of tomorrow.

To guide their own use of the new standards, educators can start by asking profound questions, including:

- How do teachers embed these thinking skills into curricular content so that student achievement rises and all students have an equitable opportunity to develop the quality of their thinking and problem solving, not just for tests, but for a lifetime of learning?
- How do the new standards help teachers empower all learners with the discriminating and enduring skills of proficient thinkers, such as analyse critically, interpret meaning, determine evidence, discern themes, clarify relationships, and identify point of view, nuance and bias?
- How do teachers make sure they are not falling to the low expectation of merely asking students to memorise facts and regurgitate figures?

In response to these questions, *How to Teach Thinking Skills Within the Australian Curriculum* identifies 21 complex cognitive skills that are most prominent within the new curriculum. It then generalises these rigorous skills so they are approachable

and applicable to every student, no matter what year level or subject – and without loading extra busywork on teachers who already have more than enough planning to do. In this light, the book builds on teachers' prior knowledge so each teacher can focus on the specific standards that impact his or her classroom.

The book's practical approach refuses to turn the standards into a giant academic hurdle. Instead, it follows the age-old wisdom of KISS (keep it simple, stupid). In short, this book is designed to prepare teachers and their educational leaders to make simple adjustments to classroom instruction. It relies on a practical approach that will enhance both the critical thinking skills and the rigorous content these new standards bring to the classroom. Ultimately, it looks to assist today's students with the development of relevant life skills and rigorous knowledge that will best serve them through all of their school years. This is not teaching to the test. It is teaching for a lifetime.

## A Practical and Explicit Exposition

This practical handbook is divided into seven student proficiencies: (1) critical thinking, (2) creative thinking, (3) complex thinking, (4) comprehensive thinking, (5) collaborative thinking, (6) communicative thinking and (7) cognitive transfer. Tabs along the side of the book provide for quick access to each proficiency. Each proficiency identifies three essential thinking skills for explicit teaching, providing a manageable synthesis of the new standards. *Explicit* means that the skill is clearly and compactly defined so that a student has an unequivocal understanding of the term with nothing left to suggestion. In the explicit approach, teachers illuminate the targeted skill and teach a formal lesson about it. All attributes are identified, so there is no room for confusion or doubt about how to use the skill appropriately.

The 21 selected skills do not cover all the thinking skills in the standards. The majority of the skills selected were those most frequently captured in a keyword search of the standards. Others were selected because teachers indicated to the authors they were the most important thinking skills in their classrooms. Many of the thinking skills appear in the standards as explicit, first-word instructions – *analyse, solve, prove, interpret*. Others occur implicitly within the curriculum language. Throughout the book are feature boxes providing “Examples From the Curriculum” that refer to the highlighted thinking skill. These example standards are taken directly from the Curriculum and can be found at [www.australiancurriculum.edu.au](http://www.australiancurriculum.edu.au).

It is not this book's expectation that every teacher studies or implements every one of the 21 skills. Teachers' selections are best driven by their own year-level and subject-area standards and the needs of their students. For implementation, less will be more, with each teacher focusing on the two or three key skills that he or she can develop with the deepest student competence and confidence over a school year.