

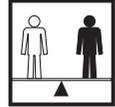
TEACHING THINKING Pocketbook

By Anne de A'Echevarria
& Ian Patience



Cartoons:
Phil Hailstone

C o n t e n t s

		<u>Page</u>	
	Introduction	Can thinking be taught?, who can benefit?, one skill or many?, Bloom's taxonomy, PRICE, six principles, thinking tools, troubleshooting	7
	Processing Information	Identifying the problem, thinking tools and how to use them: Odd One Out; Knowledge Mapping; Parts and Wholes; Collective Memory	19
	Reasoning	Identifying the problem, learning to argue, evaluating arguments, hare-brained logic, thinking tools and how to use them: Opinion Line; Concept Line; Concept Mapping	39
	Inquiry	Identifying the problem, closed, framed or open?, the SECRET of inquiry, introducing inquiry, thinking tools and how to use them: Mystery; Inference Square	59
	Creative Thinking	Identifying the problem, thinking tools and how to use them: Kick Cards; Double 6; The Inverse, talking about creative thinking	75
	Evaluation	Identifying the problem, thinking tools and how to use them: Diamond Ranking; Target Board	87
	The Thinking Lesson	Planning: from 'what' to 'how'; the learning zone; the perfect challenge; a meal in three parts: 1. Launching: setting thinking objectives; identifying what you know and what you feel; creating a need to know. 2. Thinking together: exploratory talk; rules; prompts; guide on the side. 3. Thinking about thinking: metacognition; rich questioning; ASK model; talking about thinking; learning for transfer	99

PRICE taxonomy



An alternative taxonomy organises thinking skills into five categories: **PRICE**. Unlike Bloom, there is no implied hierarchy and there is 'spill over' between categories: Creative thinking involves Evaluation, and Inquiry involves Reasoning.

P rocessing information		Locate/collect information; sort and classify; sequence; compare and contrast; identify part/whole relationships.
R easoning		Give reasons; draw inferences/make deductions; see relationships; explain; make informed decisions.
I nquiry		Ask questions/define problems; plan/gather data; predict outcomes/consequences; draw/test conclusions.
C reative thinking		Generate/develop ideas; suggest hypotheses; imagine.
E valuation		Set and use criteria; make judgements.

In its favour, PRICE is easy to remember and relates well to the types of lessons you are likely to teach. Progression and differentiation are characterised less by the *type* of thinking skill involved and more by the context, subject matter and degree of support required. (For more on teaching for progression see p.103.)

Six principles for teaching thinking



No matter which thinking skills you want to focus on with your students, or what strategies you use, a teaching thinking lesson will be characterised by six key principles. The lesson will be:

1. Active

Try to give your students the opportunity to explore ideas using a variety of thinking tools that take account of different learning styles.

2. Meaningful

A meaningful lesson will be engaging and memorable. Try to make a clear link between the skill focus of the lesson and its usefulness in everyday life.

3. Challenging

A challenging lesson will change minds. The idea is to present your students with a cognitive challenge that is not so great as to overwhelm, but not so slight that it is boring. Students will be working at the edge of their understanding.

Six principles for teaching thinking



4. Collaborative

We learn from others, so collaboration makes sense. Students will be working in small groups using their own approaches. Your role is to support them as they explore their differences of opinion and interpretation.

5. Mediated

Challenge your students to think as much as possible for themselves. Try to take on the role of guide and adviser, rather than that of expert or guru.

6. Reflective

At various points in the lesson, learners think about their thinking. Your role is to ask questions that will help your students to figure out what they have learned, how they learned it and where it might be useful in the future.

Teaching thinking toolbox



The next five sections of this Pocketbook form a toolbox of practical strategies that you can use to develop your students' thinking skills. The 'thinking tools' are versatile – we've seen the same tool used effectively in many subject contexts at every stage between Reception and Degree Level – and they are fun. Like all tools, their skilful use comes with practice. Aim to use each tool several times, adapting to suit the needs and abilities of learners and the requirements of the curriculum.

All of the suggested activities will involve students in using and combining a range of different thinking skills. Sometimes, though, it is helpful to focus attention on one particular skill, such as evaluation or reasoning, if this is a particular area of difficulty for your students.

Each of the following sections takes a 'troubleshooting' approach. The types of thinking that students typically struggle with are matched with 'thinking tools' that can be used to help them overcome these particular areas of difficulty. The troubleshooting approach will help you to select the most effective tool for the job.

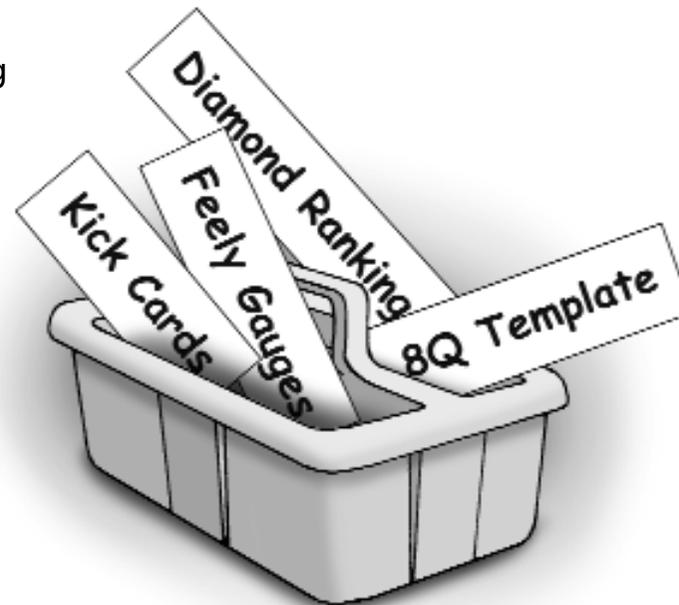
Tools for better thinking



The value of thinking tools is that:

- They introduce and guide students through the skilful practice of required thinking
- They make thinking processes visible and explicit
- They slow down the thinking
- They provide a visible record of thinking processes for teachers and learners to reflect on and discuss

Thinking tools are not the 'new worksheets'; emphasis is on the thinking process. You can begin to remove the tools when your students begin to demonstrate confidence with a particular thinking process, eg 'decision making' or 'evaluation'.



Troubleshooting



Here are five of the most common ‘thinking problems’ that students face, according to teacher surveys. As you can see, they relate closely to the **PRICE** taxonomy.

Problem 1 (Page 20)

Processing Information

Struggles to order and organise new information and therefore to recall it.

Problem 2 (Page 40)

Reasoning

Has trouble forming an opinion and justifying a view; tends to be uncritical of ideas and information.

Problem 3 (Page 60)

Inquiry

Finds it hard to initiate and sustain an independent project or inquiry.

Problem 4 (Page 77)

Creative Thinking

Struggles to come up with or develop ideas.

Problem 5 (Page 88)

Evaluation

Evaluation is superficial; little awareness of the criteria they’re using to make judgements.

About the authors

Anne and Ian helped establish 'Thinking for Learning', an educational research and development team in Northumberland. Its professional development programmes in thinking skills, creativity, EI, coaching and leadership have international standing.



Anne de A'Echevarria

Anne directs her own education consultancy, Thinkwell. Before this she was a youth worker in Paris, a teacher in the UK and France and a PGCE tutor. Her interest in creative writing and education combine in her use of storytelling to lead innovation and change, and in the creation of stories to foster student enquiry into learning. A recent example is the award-winning Thinking Through School.



Ian Patience

Ian's long-standing interests in education and art have led him to work as a stained glass window maker, a mosaicist, an illustrator, a fine artist and a teacher. A belief in the value of creativity lies at the heart of Ian's work. He encourages teachers and students to enjoy challenging accepted norms and to feel confident in constructing new and better ways of living and learning.

Contact Anne and Ian at: www.thinkingforlearning.com; www.thinkwell.org.uk