Rationale Thinking Pack

Building Critical Thinking Skills in Your Classroom
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# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why Critical Thinking?</td>
<td>3</td>
</tr>
<tr>
<td>What is the Critical Thinking Path?</td>
<td>5</td>
</tr>
<tr>
<td>How we progress along the Path</td>
<td>11</td>
</tr>
<tr>
<td>Grouping Maps</td>
<td>12</td>
</tr>
<tr>
<td>Reasoning Maps</td>
<td>14</td>
</tr>
<tr>
<td>Basis Boxes</td>
<td>16</td>
</tr>
<tr>
<td>Analysis Maps</td>
<td>18</td>
</tr>
<tr>
<td>Evaluation</td>
<td>20</td>
</tr>
<tr>
<td>Essay Planning</td>
<td>22</td>
</tr>
<tr>
<td>What if? What else?</td>
<td>24</td>
</tr>
<tr>
<td>Austhink’s Resources</td>
<td>25</td>
</tr>
<tr>
<td>Austhink’s Training</td>
<td>26</td>
</tr>
<tr>
<td>Austhink’s Support</td>
<td>27</td>
</tr>
<tr>
<td>Austhink’s Expertise</td>
<td>28</td>
</tr>
<tr>
<td>Rationale’s Affordability</td>
<td>29</td>
</tr>
<tr>
<td>Comments</td>
<td></td>
</tr>
<tr>
<td>From our Primary users</td>
<td>30</td>
</tr>
<tr>
<td>From our Educators</td>
<td>31</td>
</tr>
<tr>
<td>Technical Stuff</td>
<td>32</td>
</tr>
</tbody>
</table>
Why Critical Thinking?

Think about why Critical Thinking is important to you.
Why Critical Thinking?

Critical thinking is important to me.

- because It applies in all my subjects.
- because Students need to analyse and evaluate ideas.
- because There are large amounts of information they need to process.

- because I need to meet curriculum directives.
- because It enables good discussion in my classroom.
- because Students with good critical thinking skills know how to think about issues critically.

- because Critical thinking is a life skill.
- because The Education department has learning standards for thinking skills.
- because It assists students with research.
- because It involves considering different viewpoints.
- because It involves evaluation of information and ideas.
- because It involves recognising that opinion needs to be supported by relevant evidence.

Here are some responses we received from Secondary Teachers.

- Example English, History, Legal Studies, Politics, Geography and Philosophy.
- Common Belief The claim above is widely believed.
- Personal Experience Based on my 7 years teaching experience in secondary schools.
- Statistic 100% response from survey of 138 philosophy students in Carlton, Victoria.
- Assertion Janette Reid the philosophy teacher of TLP.
- Expert Opinion Lecturers of Critical Thinking at The University of Melbourne.
What is the Critical Thinking Path?

Critical Thinking

The Critical Thinking Path

1. Organise information
2. Structure ideas
3. Consider Evidence
4. Analyse Reasoning
5. Evaluate Arguments
6. Communicate Judgements

Throughout the path we need to reflect upon our thinking
How?
The typical tool: Prose

Normally we use prose to show our reasoning.

Pentonville Road runs from east to west, then turns into City Road, which comes to a T-junction where East Road meet Moorgate City Road. Running roughly south from Pentonville Road is first Gray’s Inn Road and then King’s Cross Road, which turns into Farringdon Road after the intersection with Clerkenwell Road. Where Pentonville Road turns into City Road, St. John’s Street runs south. As you go along City Road, you come to Goswell Road (which turns into Aldersgate Street) and Bunhill Row running south. As you go down Gray’s Inn Road, the first intersection is with Guildford Street, which continues to a T-junction with King’s Cross Road. The next intersection, as you continue down Gray’s Inn Road, is with Theobald’s Rd, which at that point turns into Clerkenwell Road, though you could veer off NE along Rosebery Avenue which crosses King’s Cross Road before it joins St. John’s Street near the junction of Pentonville Road and City road. Gray’s Inn Road terminates at High Holborn, a major E-W road which, as you go east, turns into Newgate Street and then Cheapside. St. Paul’s Cathedral is between Newgate Street and Fleet Street, which runs roughly parallel to Newgate. Southampton Row goes south intersecting with Guildford Street, Theobald’s Road and High Holborn, where it becomes Kingsway, which continues south to a T-junction with the curve of Aldwych, which begins and ends on Fleet Street. From Rosebery Road you can head east along Lever Street, which crosses St. John’s Street and Goswell Road before finishing at Bunhill Row where it meets City Road. Heading south down St. John’s Road, you cross Lever Street and then Clerkenwell Road. Goswell Road also crosses Lever Street and Clerkenwell Road (which at that point becomes Old Street). Goswell Road becomes Aldersgate Street. Hatton Garden goes between Clerkenwell Road and High Holborn. Streets running south from High Holborn are Kingsway, Chancery Lane and Farringdon Road. Chancery Lane is a short street finishing at Fleet Street. Fleet Street ends at a large intersection just east of St. Paul’s. Aldersgate Street continues past London Museum (which is at the corner of Aldersgate and London Wall) down to Newgate Street. Beech Street runs E from Aldersgate, turning into Chiswell Street before it meets City Road. East Road runs south, past the intersection of City Road, over Old Street and London Wall, where it becomes Moorgate Street.

Task: Have a look at this prose which gives the directions around London. Now work out how to get from St Paul’s Cathedral to London Museum.
How?
Maps as Tools

Prose is not always the easiest or clearest way to find the answer.

Task: Now locate the route from St Paul’s Cathedral to London Museum. A bit easier? The map utilizes colour, shapes, icons and lines to provide visual cues for understanding relationships between places.
Research shows strong gains in critical thinking skills when using argument mapping:

![Critical Thinking Skill Gains](chart.png)

Research undertaken at The University of Melbourne demonstrated that students using argument mapping improved their critical thinking skills 4 times more than regular university students and at least 2 times as much as students taking traditional critical thinking courses.
How? Rationale Argument Mapping Program

Rationale goes beyond concept-mapping or mind-mapping software. It is a tool to develop critical thinking skills by providing a framework for reasoning, evaluation, analysis and communication.
How? Stepping along the Rationale Thinking Path

Critical Thinking

The Critical Thinking Path

1. Organise information
2. Structure ideas
3. Consider Evidence
4. Analyse Reasoning
5. Evaluate Arguments
6. Communicate Judgements

Rationale provides the tools to assist us along the Critical Thinking Path.

Rationale

Grouping Maps
Reasoning Maps
Basis Boxes
Analysis Maps
Evaluation
Essay Planning
Steps on the Thinking Path: Grouping Maps

1. Organise information

Grouping Maps: to gather, sort and organise information.

Diagram:
- Animals
  - Wild
    - Elephant
    - Rhinoceros
  - Pets
    - Cat
    - Dog
Grouping Maps: Classroom Example

Queen Elizabeth I

Significant Events

Treacherous Events
- Accusations of Elizabeth’s treachery.
- 1554 Elizabeth taken to the Tower to be executed by Mary.
- Mercy granted by Mary.
- Four attempts by Mary Queen of Scots to kill Elizabeth.
- Plot led by Anthony Babington resulted in Mary’s execution in 1587.

Treachery against Elizabeth
- Mary Queen of Scots viewed by Catholics as legitimate Queen of England.

Religious Events
- Church of England
- Spanish Armada led by King Philip in 1588.
- Re-established the Protestant Church in England.
- Elizabeth became Supreme Governor of the Church of England.
Steps on the Thinking Path: Reasoning Maps

2. Structure Ideas

Reasoning Maps: to formulate, structure and evaluate ideas.

Position
The main issue to be accepted or rejected.

Reason
Information which directly supports the position.

Objection
Information which counts against the position.

Reason
Information backing up the reason above.

Objection
Information which counts against the reason above.

Reason
Information backing up the objection immediately above.

Objection
Information which counts against the objection immediately above.

(Rebuttal)
Information which counts against the objection immediately above.
Reasoning Maps: Classroom Example

Wind farms are the power solution for the twenty-first century.

because

Wind farms are more environmentally friendly than coal, oil and gas alternatives.

because

Wind farms do not disturb wildlife.

because

Environmental audits have shown that it is unlikely that wildlife will be injured by wind farms.

but

Coal, oil and gas are less expensive sources of energy than wind power.

however

Wind power will become a cheaper energy source once the infrastructure is in place.
Steps on the Thinking Path: Basis Boxes

3. Consider evidence

Basis Boxes: to identify and assess sources of information.

- Publication
- Personal Experience
- Expert Opinion
- Common Belief
- Example
- Assertion
- Statistic
- By Definition
- Data
- [My Basis]
Basis Boxes: Classroom Example

The provocation defence should have been removed.

- The provocation defence was gender biased.
  - The defence of provocation is used more often by men who have killed women than women who have killed men.
  - Women were severely disadvantaged under provocation laws.
  - People who intentionally kill are found not guilty of murder.

- The provocation defence produced unjust outcomes.
  - Expert Opinion VLRC
  - Quote: "Provocation defence "belonged to a bygone era when community values were different"", John Thwaites.
  - Case Studies: Ramage and Keogh cases
  - Quote: "Prove provocation defence allowed killers to "get away with murder"", Attorney-General Rob Hulls.

- The provocation defence reflects different community values to those we have today.
  - Expert Opinion VLRC
  - Quote: "Today we do not believe a violent response is justifiable with reference to the victim's behaviour."

but...

Women have been more successful than men in using the provocation defence.

- Expert Opinion Phillip Priest QC
- Data VLRC
- Quote: "Prove provocation defence "belonged to a bygone era when community values were different"", John Thwaites.

We can create subject specific basis boxes.

Here we see a good range of resources and research utilized.
Steps on the Thinking Path: Analysis Maps

4. Analyse Reasoning

Analysis Maps: to analyse, locate assumptions, develop strong argument structures.

Staff meetings are good for you.

Staff meetings contain useful information.

Useful information is good for you.

Common Belief
The claim above is widely believed.
Analysis Maps:
Classroom Example

- Macbeth was evil.
  - Macbeth was well liked and respected by others.
    - In the beginning of the play others praise Macbeth.
      - Quote: "In act 1 a soldier returned from battle says: "For brave Macbeth - well he deserves that name.""
    - Macbeth murdered King Duncan.
      - Quote: "In the same act King Duncan says: "O valiant cousin! Worthy gentleman!"
    - Macbeth murdered Banquo.
      - Publication: Macbeth, Act 2, Scenes 1 & 2.
      - Publication: Macbeth, Act 3, Scene 3.
  - Evil people are not well liked and respected by others.
  - Macbeth was a murderer.
  - Murderers are evil.

Opposition and support relationships are indicated by arrows and labels.
Steps on the Thinking Path: Evaluation

5. Evaluate Arguments

Evaluation: to consider and judge claims and arguments.

I should go to the beach today.

because

I would enjoy myself at the beach.

because

I like swimming.

but

I should be at work today.

because

Today is Monday.

but

The surf is dangerous today.

however

I am a strong swimmer.

Personal Experience

Common Belief

Assertion
Evaluation: Classroom Example

Based on these reasons, we would accept this contention.

Capital punishment is wrong.

- Innocent people are sometimes executed.
- Many convicted murderers have later been proven innocent.

People should be given a chance to redeem themselves.

- Society benefits from the service of people who redeem themselves.
- In the U.S., crime rates are not lower in states which have capital punishment.

A disagreement about the evaluation of one claim will identify where more reasoning and evidence may be required.
Steps on the Thinking Path: Essay Planning

6. Communicate Judgments

Essay Planner: guides and builds understanding of essay structures.

POSITION.
Click here and type in the main point that you are arguing for.

REASON 1.
Click here and type in your first point that backs up the position above.

SUPPORT FOR REASON 1.
Click here and type in evidence that provides a reason for reason 1.

because

REASON 2.
Click here and type in the second point that supports the position above.

SUPPORT FOR REASON 2.
Click here and type in something that gives a reason to believe reason 2.

because

OBJECTION.
Click here and type in a point that goes against the position above.

REBUTTAL.
Click here and type in an objection showing why the above objection is wrong.

but

however
Essay Planning: Classroom Example

Samuel Chesterton doesn't deserve to inherit his uncle's fortune.

- Because Chesterton is mean to other people.  
  - Because He was mean to Molly.

- Because Chesterton is a wastrel.  
  - Because He dismissed the footman over a tiny incident.
  - Because He gambles.

- Because Chesterton doesn't show any consideration for his uncle.  
  - Because He lives extravagantly but has never worked.
  - Because Chesterton didn't visit his uncle when his uncle was sick.
  - Because Chesterton told his uncle about the letter even though he knew this would cause the old man a lot of grief.
### What if? What else?

<table>
<thead>
<tr>
<th>What if</th>
<th>What else</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>What if I don’t have time to create resources?</strong></td>
<td>Austhink provides resources for using Rationale.</td>
</tr>
<tr>
<td>2. <strong>What if I’m not confident with argument mapping?</strong></td>
<td>Austhink provides training for using Rationale.</td>
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<tr>
<td>3. <strong>What if I have technical or pedagogical questions?</strong></td>
<td>Austhink provides support for using Rationale.</td>
</tr>
<tr>
<td>4. <strong>What if I’ve never heard of Austhink?</strong></td>
<td>Austhink provides the expertise for teaching critical thinking.</td>
</tr>
<tr>
<td>5. <strong>What if I’m concerned about my budget?</strong></td>
<td>Austhink provides affordable critical thinking software.</td>
</tr>
</tbody>
</table>
What if? What else?
Austhink’s Resources

Austhink provides resources for using Rationale.

because

They have Educator Guides.

because

There are FAQs, quick start guides and short introductions available in Rationale.

because

They are developing training exercises for learning and teaching.

because

There is an Educator Guide for conceptual understanding of Argument mapping.

because

There are Primary and Secondary supplements which provide practical information, including activities, templates, examples and assessment ideas.

because

They’re not finished yet.

Austhink think this will assist teachers and students improve critical thinking skills.

4 out of the 12 are finished and the others will be finished by the end of March.

Common Belief
The claim above is widely believed.

Publication
see www.austhink.com/education/

Personal Experience

Assertion
Fiona Patterson at Austhink.

Assertion
Fiona Patterson at Austhink.
What if? What else? Austhink’s Training

Austhink provides training for using Rationale.

because

They have PD.

because

They are developing on-line training exercises and user videos.

because

There are 1 day courses each term.

because

There are 1-2 hour courses available at my school.

because

Austhink think this will assist teachers and students improve their understanding and use of Rationale.

because

There is a "Get Thinking with Rationale" course.

because

There is an advanced "Critical thinking with Rationale" course.

because

There is a "Quickstart to Rationale" course.

because

Common Belief
The claim above is widely believed.

Publication
see www.austhink.com/education/

Assertion
Fiona Patterson at Austhink.

Assertion
Fiona Patterson at Austhink.
What if? What else? Austhink’s Support

Austhink provides support for using Rationale.

- because
  - Austhink have technical support.
  - The tech team answer support emails or calls.

- because
  - Austhink have professional support.
  - Teachers can ring or email Fiona Patterson, the Education Co-ordinator with queries.

- because
  - Austhink are developing teacher forums.
  - They are integrating teacher profiles on their web site.
  - They are developing a "bickr" for teachers to showcase and share resources.

- because
  - Personal Experience
    - You can call Ben on 8317 1002 extension 107.

- because
  - Austhink is a company whose people are accessible.

- Expert Opinion
  - Tim van Gelder and Andy Bulka are working on a project with University of Melbourne IT Honours students to develop a brilliant forum.
Austhink’s Expertise

Austhink provides the expertise for teaching critical thinking.

because

Austhink developed from the Reason Project at The University of Melbourne.

because

The Reason Project revealed the success of using argument mapping in education.

because

Publication
Charles Twardy, “Argument Maps improve Critical Thinking”.

because

Data
California Critical Thinking Skills Test results.

because

Example
Tim, Richard, Fiona, Yanna, Dan, Nicole, Paul.

because

The Austhink team have outstanding academic credentials.

because

They have 7 staff members with PhDs.

because

Common Belief
The claim above is widely believed.

Tim and Fiona teach "Critical Thinking: The Art of Reasoning" in the School of Philosophy at The University of Melbourne.
What if? What else?  Rationale’s Affordability

Rationale is expensive.

because

Rationale looks expensive.

but

because

Rationale has individual education licences from $49.

however

because

Looks can be deceptive.

Austhink provides affordable critical thinking software.

because

Austhink provide a range of licencing types to suit different budgets.

because

Austhink provide full ownership licences or annual licences.

because

Austhink provide site licences, lab packs and individual licences.

Assertion
Sarah from Austhink.

Example
Perpetual licences and Subscription licences are available.

Common Belief
The claim above is widely believed.
What else? Some Comments from our Primary users

1. I liked the way it had different kinds of maps.
2. Fun, interesting, exciting, great way to do homework (easier too!)
3. Write essays quicker and help people to write essays.
4. It’s great and should be used in all Australian schools.
5. It is a good way to get ideas down.
6. I think that all teachers should use it (even the Prime Minister)
What else? Some Comments from our Educators

“Once they start to see this as a normal, natural way to think through their essay plan, the quality of their essays jumps noticeably. Students who were baffled at first start to feel that they really can do this stuff. That's magic.”
Mark Matcott, Lilydale High School, Victoria.

"Wow, it was a real joy to work with the program, it really goes a long way to answering all my previous wishes, and offers lots of unlooked for delights as well."
Dr. Geoff Hyde, National Centre for Biological Sciences, India.

“I used Rationale with my first year class as part of a module on critical thinking. The software gave students a concrete focus for discussions about reasoning patterns and was a valuable component of the curriculum material. I will definitely use it again next year.”
Professor Liz Sonenberg, Department of Information Systems, The University of Melbourne.

"Your new software is genuinely dazzling – both at a practical level and at a theoretical level. Congratulations!
Peter Tillers, Professor of Law, Yeshiva University, New York."