

# THE IMPORTANCE OF CRITICAL THINKING

by Melissa Fisher

For years theorists have studied the importance of developing critical thinking skills in students to create confident and independent citizens of the world— people who can hypothesise about, analyse, create and evaluate the world they live in. However, while many teachers agree on the importance of developing these skills, time restraints and a push to teach content often impacts the time spent developing critical thinkers.

Critical thinking involves the ability to gather information, process it, evaluate it using evidence and apply the information to new situations. Developing these skills is a time-consuming and progressive journey which is enhanced through immersion in opportunities to practise and discussions.

The Australian Curriculum acknowledges the importance of developing critical thinkers through the inclusion of the general capability—critical and creative thinking. 'The general capabilities comprise an integrated and interconnected set of knowledge, skills, behaviours and dispositions that apply across subject-based content and equip students to be lifelong learners, able to operate with confidence in a complex, information-rich, globalised world.'<sup>1</sup>

Both Linda Elder and Richard Paul from the Centre for Critical Thinking explain that critical thinking is a stage theory in which students progress from the unreflective thinker to the accomplished thinker in a series of six stages. <sup>2</sup> During each stage, students must demonstrate they can transfer their critical thinking skills into all aspects of their lives. For this reason, progression through stages is time-consuming and requires a multitude of practise opportunities.

Other stage theories, including Bloom's Taxonomy of the Cognitive Domain (Bloom et al. 1956) highlight the importance of progressing through hierarchical stages to develop higher order thinking skills. <sup>3</sup> Bloom et al. (1956) believe that simply recalling facts is the lowest level of thinking, progressing into comprehending, applying and analysing as the levels of thinking become more complex. Higher order thinking occurs when students can evaluate the quality of information

presented and use their knowledge to create and/or improve an item or a situation.

While adaptations have been made to Bloom's Taxonomy, the hierarchical nature of thinking still remains consistent. It is also imperative to note that students will progress through the stages at different rates, as with all skill development.

*'Education is not the learning of facts but training the mind to think' – Albert Einstein*

## So how can teachers promote critical thinking in the classroom?

Firstly, oral language plays an important role in developing critical thinkers. Encouraging discussions where students question phenomena or points of view, justify their personal opinions using evidence, and use prior knowledge to find solutions or alternative methods, are vital. Providing students with opportunities to communicate with other students, teachers and school staff allows them to examine alternative points of view and ways of thinking about a topic.

Secondly, while critical thinking can be developed throughout all learning areas, some—such as Science and Design and technologies—provide greater opportunities to develop these skills through hands-on investigations.

Science naturally lends itself to developing critical thinkers as it requires students to hypothesise about a topic, analyse or test the information, provide evidence to prove or disprove the theory/idea and evaluate the evidence. It requires students to constantly question the world around them and seek alternative solutions to local, national or global issues. Conducting experiments and open-ended tasks creates engaging lessons where students can develop their higher order thinking skills.

Likewise, Design and technologies provides opportunities for students to use their prior knowledge to plan, create and evaluate a designed solution (a product or a service). Hands-on projects should be centred around an identified local, national or global issue/ need, such as planning and building a bird feeder for the local ranger. Students must use their lower order thinking skills to plan the project and higher order thinking skills to create and evaluate the effectiveness of their designed product.

Lastly, encouraging cooperative learning provides additional opportunities for students to justify their point of view, explore other students' points of view and reason with their peers to find the most effective solution/ answer.

In summary, it is clear that developing students' critical thinking skills through oral discussions, hands-on investigations and cooperative learning activities is imperative and should be a priority in all schools to create critical thinkers of the future.

### REFERENCES

1. Australian Curriculum structure, viewed 8 December 2015, <<http://www.australiancurriculum.edu.au/overview/structure>>
2. L Elder & R Paul, *Critical thinking development: A stage theory*, The critical thinking community, viewed 8 December 2015, <<http://www.criticalthinking.org/pages/critical-thinking-development-a-stage-theory/483>>
3. B Bloom, M Englehart, E Furst, W Hill & D Krathwohl, *Taxonomy of educational objectives: The classification of educational goals*, Handbook I: Cognitive domain, Longmans, Green, New York, Toronto, 1956, viewed 8 December 2015, <<http://www.edpsycinteractive.org/topics/cognition/bloom.html>>

## Differentiating for critical thinking

To develop students' critical thinking skills, teachers must differentiate activities to cater for various levels of cognitive processing. The two activities below demonstrate how this can be achieved and can be used by students of all ages across many learning areas. The examples have been provided based on a 'properties of materials' lesson.









### 'Yes or No' category game

The 'Yes or No' category game is designed to allow students to categorise information about a topic into 'yes' or 'no' examples. It can be used to make connections within and between topics in all learning areas and can be a whole-class, small group or individual activity.

Use a T-chart with yes/no headings at the top of each column. Provide examples of objects/information that fit the topic in the 'yes' column and examples that don't in the 'no' column. Students must make connections between the objects to determine the topic or category.

Example:

What are we learning about today?

Yes		No	
			
			
FRIDGE		BOUNCY CASTLE	
REAL 50c COIN		BOARD SHORTS	
Which of these items match the category?			
			

#### Thinking skills

Students demonstrate lower order thinking if they:

- name the objects in the T-chart
- identify the connection between objects
- apply their knowledge to identify other examples from a list

Students demonstrate higher order thinking if they:

- provide new examples to fit the category
- explain why/how each item is connected to the topic
- evaluate the chart to determine which objects have strong/weak links to the topic

#### Catering for learning styles/difficulty levels

##### Visual (spatial)

- Show concrete objects/images/words in each column (hula-hoops are useful to show the 'yes' hoop and the 'no' hoop rather than columns for young children) for students to view as long as they need to.

##### Aural/verbal (auditory/linguistic)

- Say the objects in each group and ask students to give more examples and explain their reasoning orally.

##### Physical (kinaesthetic)

- Sort additional concrete objects/image cards/word cards into each group.

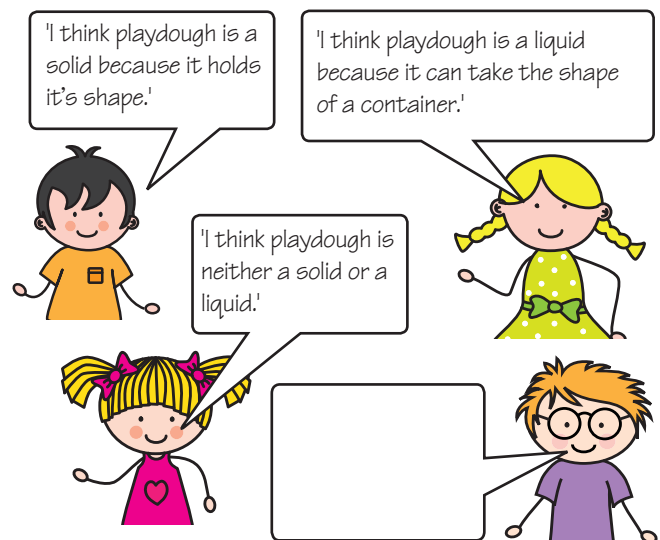
### Concept Cartoons®

Concept Cartoons® pose questions about a specific topic and provide some alternative answers to the question. Most of the points of view given are reasonable but incorrect to uncover misconceptions about the topic. Students are asked to choose the correct answer or provide their own answer to the question. This can be a whole-class, small group or individual activity.

Concept Cartoons® are available to purchase at <<http://www.millgatehouse.co.uk/shop>>. Alternatively, you could create your own cartoons based on the teaching focus.

Example:

Is playdough a solid, a liquid or a gas?



#### Thinking skills

Students demonstrate lower order thinking if they:

- select an answer (correct or incorrect) but cannot provide an explanation/example
- choose the correct answer and give a simple explanation
- cannot consider any other point of view

Students demonstrate higher order thinking if they:

- explain why they choose the answer
- provide examples to support their answer
- justify their decision by explaining why other answers are not correct

#### Catering for learning styles/difficulty levels

##### Visual (spatial)

- Show, and allow time to view, the background images and the characters of the Concept Cartoon®.

##### Aural/verbal (auditory/linguistic)

- Read each speech bubble aloud and discuss the background images.

##### Physical (kinaesthetic)

- Act out the scene using students as the characters and ask them to read the speech bubbles or give their own point of view.