

Technological Education Rubric

1 Thinking Achievement Category -- Processing Skills

The Ontario Technological Education Curriculum documents (2009) and Ontario's "Growing Success" (2010) both emphasize "Processing Skills" as a key aspect of the Thinking Achievement category. This includes translating and interpreting information, analysing a situation, synthesizing (generating) a solution, evaluating results and other reasoning and conclusion-forming processes. Refer to Figure 1 below – *Seven Core Thinking Skills*.

Thinking – The use of critical and creative thinking skills and / or processes. The Student...				
	50-59% (Level 1)	60-69% (Level 2)	70-79% (Level 3)	80-100% (Level 4)
Use of processing skills (e.g., analysing and interpreting information, reasoning, generating and evaluating solutions, forming conclusions)	uses processing skills with limited effectiveness	uses processing skills with some effectiveness	uses processing skills with considerable effectiveness	uses processing skills with a high degree of effectiveness

Table 1: Rubric: Processing Skills in the Technological Education Curriculum, Grades 9-12 (2009)

NOTE: Limited / Some / Considerable / High Degree of... Effectiveness is explained in Table 2 below.

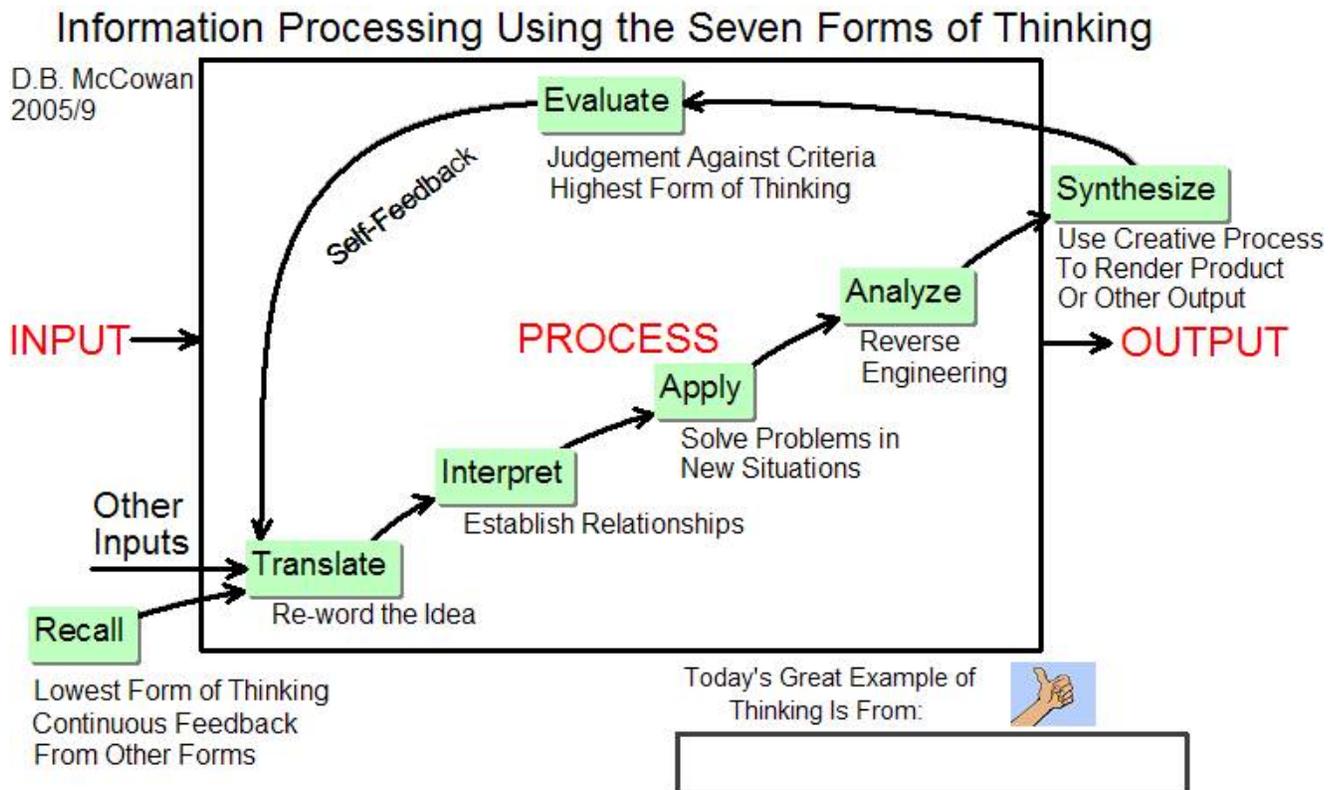


Figure 1: Seven Core Thinking Skills (Derived from Bloom's Taxonomy)

2 Rubric for Effectiveness of Information Processing – Quality of Thinking and Depth of Understanding

Use the following rubric to get a sense of the difference between a "Novice" and a "Master" -- the "Quality" of thinking that you put into a design document or oral presentation for example. In general, work and effort by a "Novice" will look simplistic, rushed or trivial, typically using only the lower thinking skills (Recall / Translate). Work by a "Master" will look professional and as though driven by a desire for quality and a quest for public acclaim. Using the higher thinking skills – Analyze, Synthesize and Evaluate – will make the student more of a master. A "Master" always delivers work on time and of a consistently high and value-added quality. A "Master" proudly and carefully stores evidence of learning and achievement. A Master will always self-assess his or her work and have it thoroughly peer-assessed by another knowledgeable person. A Master will always reflect and generate a list of ways to improve in a `version 2` or in a similar situation in the future. Work & behaviours may be at even less than "Novice" level – e.g. minimal effort, plagiarized, careless.

Rubric for Effectiveness of Information Processing -- Developing Core Thinking Skills for Innovation				
Basic Understanding of a Concept(s) -- Quality of Thinking -- Novice vs. Master				
The Evidence (written, verbal, visual) shows that the student...				
	"Ideas" Level 1 <60%	"Connections" Level 2 -- Novice 60% to 69%	"Extensions" Level 3 70% to 79%	"Critical Reflection" Level 4 -- Master 80% to 100%
Evidence supporting the depth of thinking and the effectiveness of information processing skills that must be demonstrated	-Simply Recalls the definition or textbook explanation of a concept without being able to explain any further -Note: Plagiarism results in a mark of 0 when the situation is open book	- Translates the definition into own words - Interprets -- shows a connection with at least one other concept and describes their inter-relationship -eg Shows the concept within a simple hierarchy or tree of related concepts -eg Translates a set of data in a word problem into a graph or table or some other simple valid model	-Complies with Level 2 and most of the following... - Applies previous knowledge of the concept in a new previously unexplained situation - Analyses a system in which that concept "operates" -- describes connections with several other concepts within that system -Considers the "bigger picture" -- where does this concept "fit into a particular application in technology" and gives some idea of the role and value of that concept within the system -Analysis of the system is logical, rational and structured or -Analysis of the system is unique or off-beat, yet very reasonable and convincing - Synthesizes a good example to illustrate understanding and Application of the concept within a system context	-Complies with Level 3 and most of the following ... - Evaluates own understanding against criteria, including own criteria -identifies weaknesses in own understanding; asks oneself several value-added questions -proposes areas for improvement in a version 2 -proposes and explains alternative or other models of understanding the concept such as parent / child relationships with other concepts -includes a visual Mind Map showing action words linking concepts and connecting to one`s own career goals -uses or at least proposes other creative ways to show understanding and extensions of own thinking -- such as design of an experiment or demonstration

Table 2: Rubric for Effectiveness of Processing Skills