

Appendix F

Problem Solving rubric taken from the 2003 Nelson Mathematics programme.

Criteria	Level 1 – Very Limited	Level 2 – Developing	Level 3 – Advanced	Level 4 – Excellent
Thinks Understand the Problem	<ul style="list-style-type: none"> Shows insufficient understanding of the problem (i.e., is unable to identify sufficient information or to restate problem) 	<ul style="list-style-type: none"> Shows partial understanding of the problem (i.e., is able to identify some of the relevant information but has difficulty restating problem) 	<ul style="list-style-type: none"> Shows complete understanding of the problem (i.e., is able to identify relevant information and to restate problem) 	<ul style="list-style-type: none"> Shows in-depth understanding of the problem (i.e., is able to differentiate between relevant and irrelevant information and is able to rephrase problem)
Plans Write a Plan	<ul style="list-style-type: none"> Decides upon one problem-solving strategy and does not develop a plan 	<ul style="list-style-type: none"> Decides upon one problem-solving strategy and develops a partial plan 	<ul style="list-style-type: none"> Considers more than one problem-solving strategy and develops an appropriate plan 	<ul style="list-style-type: none"> Evaluates several problem-solving strategies and develops a succinct and appropriate plan
Does Carry Out the Plan	<ul style="list-style-type: none"> Uses one strategy and attempts to solve problem but does not arrive at an answer Use of procedures includes major errors and/or omissions 	<ul style="list-style-type: none"> Carries out the plan to some extent, using one strategy, and develops a partial and/or incorrect solution Use of procedures includes several errors and/or omissions 	<ul style="list-style-type: none"> Carries out the plan effectively by using an appropriate strategy and solving the problem Use of procedures is mostly correct, but there may be a few minor errors and/or omissions 	<ul style="list-style-type: none"> Shows flexibility and insight when carrying out the plan by trying and adopting several strategies to solve the problem Use of procedures includes almost no errors or omissions
Looks Back: Review Solution	<ul style="list-style-type: none"> Is unable to identify either errors or omissions in the plan or in the attempted solution 	<ul style="list-style-type: none"> Has some difficulty checking plan and attempted solution for errors and/or omissions 	<ul style="list-style-type: none"> Checks the plan and solution for procedural errors and omissions 	<ul style="list-style-type: none"> Thoroughly reviews the plan and solution for effectiveness of strategies chosen and for procedural errors and omissions Verifies the answer and judges whether it is reasonable
Communicate	<ul style="list-style-type: none"> Provides an incomplete explanation of the strategy/solution that lacks clarity (i.e., uses very little mathematical language; makes very little use of mathematical representations—models, diagrams, graphs, tables) 	<ul style="list-style-type: none"> Provides a partial explanation of the strategy/solution that shows some clarity (i.e., uses some mathematical language correctly; makes some use of mathematical representations—models, diagrams, graphs, tables—as required/as necessary) 	<ul style="list-style-type: none"> Provides a complete and clear explanation of the strategy/solution (i.e., uses mathematical language correctly; makes appropriate use of mathematical representations—models, diagrams, graphs, tables—as required/as necessary) 	<ul style="list-style-type: none"> Provides a thorough, clear, and insightful explanation of the strategy/solution (i.e., uses precise mathematical language; makes most appropriate use of mathematical representations—models, diagrams, graphs, tables—as required/as necessary)