Critical Thinking Rubric for Mathematics in PBL (Schettino adapted from BIE.org for ELA)
Carmel Schettino 2013

Critical Thinking opportunity at phase of Problem	Below Standard	Approaching Standard	At Standard	Above Standard ☑
At Beginning of Problem: *Analyze initial question and begin inquiry*	□ sees only superficial aspects of or one point of view of the problem posed	□ identifies some central aspects of the problem but may not see complexities or consider various perspectives □ asks some follow-up questions about the topic or reasons the question is being asked but does not dig deep	□ shows understanding of central aspects of the initial problem by identifying in detail what needs to be known to answer it and considering various perspectives □ asks follow-up questions that focus on inquiry □ asks follow-up questions to gain understanding of needs for solution methods and purpose of question or connections to broader context	
Accessing Prior Knowledge, Looking for Connections, Making Attempts *Gather and Evaluate Information*	□ is unable to integrate information to address the problem; uses or connects to too little, too much, or irrelevant prior knowledge, or knowledge from too few or too many other problems □ accepts information or connections at face value (does not evaluate its quality) or question partners □ sees the initial problem (and most problems) as disconnected knowledge	□ attempts to integrate information to address the problem, but it may be too little, too much, or gathered from too little prior knowledge or some of it may not be relevant □ understands that the quality of information should be considered, but does not do so thoroughly □ when connections are specified they are realized, but does not seem otherwise	□ integrates relevant and sufficient prior knowledge to address the problem at hand ; gathered from appropriate sources □ thoroughly assesses the quality of information, efficiency and relevance. □ easily sees how problem at hand connects to others that have led up to this one	
Developing and Revising Ideas and Methods: *Using Evidence and Comparison/Criteria*	□ accepts arguments for possible answers to the problem without questioning whether reasoning is valid □ uses evidence/prior knowledge without considering how strong/relevant it is □ relies on "gut feeling" to evaluate and revise ideas or problem solutions (does not use criteria or measures of efficiency)	□ recognizes the need for valid reasoning and strong evidence, but does not evaluate it carefully when developing answers to the problem □ evaluates and revises ideas or problem solutions based on incomplete or invalid criteria	□ evaluates arguments for possible answers to the problem by assessing whether reasoning is valid and evidence is relevant and sufficient □ justifies choice of criteria used to evaluate ideas or problem solutions □ revises inadequate drafts, diagrams or solutions and explains why they will better meet evaluation criteria	
Presenting Solution and Answers to Initial Question/Problem *Justify Choices/ consider alternatives and implications*	□ chooses one presentation medium without considering advantages and disadvantages of using other mediums to present a particular topic or idea □ cannot give valid reasons or supporting evidence to defend choices made when solving problem □ does not consider alternative methods or points of view □ is not able to explain important new understanding gained through solving the problem	□ considers the advantages and disadvantages of using different mediums to present a particular topic or idea, but not thoroughly □ explains choices made when solving the problem, but some reasons are not valid or lack supporting evidence □ understands that there may be alternative solutions, but does not consider them carefully □ can explain some things learned in solving the problem but is not entirely clear about new understanding	□ evaluates the advantages and disadvantages of using different mediums to present a particular topic or idea □ justifies choices made when solving the problem by giving valid reasons with supporting evidence □ recognizes the limitations of a solution to the problem (how it might not be complete, certain or perfect) and considers alternative perspectives □ can clearly explain new understanding gained in solving the problem and how it might transfer to other situations or contexts	