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**Analytical rubric developed for assessment of student learning in a Gold mining problem-based learning activity**

The following analytical rubric<sup>1</sup> will be used for impromptu formative feedback during my circulation around the classroom as well as grading. The rubric clearly displays the criteria by which you will be judged and the corresponding weight of each criterion. For each criterion, there is a description of what would constitute A (excellent), B (good), C (adequate), and D or F (inadequate) work.

Criteria	Weighting (total points)	Excellent (A)	Good (B)	Adequate (C)	Inadequate (D or F)
Title	5	Informative and catchy.	Informative.	Somewhat informative.	Uninformative.
Form and organization	15	Crystal clear layout of key concepts and their interrelationships. Very easy to follow.	Quite clear layout of key concepts and their interrelationships. Easy to follow.	Generally clear layout of key concepts and their interrelationships. Generally easy to follow.	Unclear layout of key concepts and their interrelationships. Difficult to follow.
Clarity	20	Crystal clear linkages among the multiple dimensions of gold mining. All arrow descriptors are succinct and clear.	Quite clear linkages among the multiple dimensions of gold mining. Most arrow descriptors are succinct and clear.	Somewhat clear linkages among many of the dimensions of gold mining. Many of the arrow descriptors are succinct and clear.	Poor linkages among some or many of the dimensions of gold mining. Too few of the arrow descriptors are succinct and clear.
Accuracy	30	All concepts used correctly and free of error. Envisaged relationships among concepts and items are flawless. Connections among various scales correct and accurately reflect reality.	Most concepts used correctly and free of error. Envisaged relationships among most concepts and items are correct. Many connections among various scales correct and accurately reflect reality.	Many concepts used correctly and free of error. Envisaged relationships among many concepts and items are correct. Majority of connections among various scales correct and reflect reality.	Some misconceptions of concepts. Envisaged relationships among some concepts incorrect. Too few connections among various scales correct and do not accurately reflect reality.
Thoroughness	30	Extremely thorough. All major and minor concepts included. Some pertinent but liminal concepts also included. Most linkages and interrelationships are noted.	Very thorough. Most major and minor concepts included. A few pertinent but liminal concepts included. Many linkages and interrelationships are noted.	Somewhat thorough. A few major and minor (mostly minor) concepts missing. Few, if any, pertinent but liminal concepts included. Majority of linkages and interrelationships are noted.	Not nearly thorough enough. Some major concepts absent and many minor concepts missing. Too few linkages and interrelationships are noted.

<sup>1</sup> The over-arching form and structure of the analytical rubric conforms to that of White (2006). Source: White, H.B., III. 2006. Construct a concept map. *Introduction to Biochemistry* student handout, University of Delaware.