

Chemistry rubric, February 2009

		Excellent	Satisfactory	Needs Work
Chemistry Body of Knowledge	Proficiency in writing chemical equations	Balanced and correctly labeled chemical equations are written that describe the chemical reactions involved.	Chemical equations are written that describe a reaction but are either incorrectly balanced or do not include appropriate subscripts to describe the physical state of each molecule.	No attempt is made to write a balanced and correctly labeled chemical equation that describes the chemical reaction involved.
	Knowledge of theory pertaining to experiment	A thorough description of the background and theory of the experiment is presented, including appropriate equations.	A partial description of the theory and background of the experiment is presented.	No description of the background and theory of the experiment is presented.
	Knowledge of chemical structures, formulas and nomenclature.	Correct usage of chemical structures, formulas and nomenclature is adhered to.	Minor mistakes in the correct usage of chemical structures, formulas and nomenclature are present.	Gross incorrectness of chemical structures, formulas and nomenclature is present.
Experimental Design	Proficiency in describing experimental procedures	A complete description of the experimental method is presented.	Some description of the experimental method is presented.	No description of the experimental method is presented.
	Knowledge and ability to conduct experiments	The raw data obtained is close to what is normally expected to be produced from the experiment	The raw data obtained is partially close to what is normally expected to be produced from the experiment	The raw data obtained is not close to what is normally expected to be produced from the experiment
	Appropriate scope of plans for the experiment	All necessary data is collected	The majority of the required data is collected	Only some of the required data is collected.

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Critical and Analytical Thinking	Ability to collect required experimental data in a reasonable amount of time	Raw data is presented in a complete fashion.	Raw data is there but lacks something such as units.	Data is incomplete or shows signs of a beginning but no end.
	Proficiency in performing a mathematical analysis of data	An example of each type of calculation is clearly given.	Some sample calculations are given.	No example calculations are given.
	Proficiency in critically analyzing data	Graphs are provided with theoretical lines (such as linear least squares) fitting the data points.	Graphs are sketchy and have no axis labels.	No graphs are provided.
	Proficiency in the chemical interpretation of data	A statement is given which tells why the experimental results agree or don't agree with predicted results	Some understanding of experimental and theoretical outcome, but lacking in depth.	No clear statement of whether experimental and theoretical results agree.
Communication	Ability to write a well-structured scientific report	Report contains the following sections: Title, Abstract, Introduction, Data, Discussion, Conclusion.	Report is missing one section or has no labels for one or more sections.	Report is missing sections.
	Proper usage of tables and figures to present data	Tables are numbered consecutively. Figures are numbered consecutively. Tables and figures have titles, and within the tables and figures, labels for various portions.	Titles for the tables and figures are sketchy or don't make sense.	Tables and figures are not numbered and have no titles.
	Knowledge and proper use of citations and references	References are numbered and conform to the standards of the American Chemical Society.	References are given but not in ACS style.	No references are given.
	Knowledge of what constitutes an original figure, and what is a figure that should be attributed to another source	Figures have simple graphics created by the author. Complex graphics have a reference to the source.	Portions of figures are created with complex programs and no source is stated.	Figures are scanned in and have complex graphical attributes such as 3D rendering, and no source is stated.

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