Holistic Rubric for Science Experiments

NOTE: This is only an example of what a holistic science experiment rubric could resemble. Please adapt it to fit your particular needs.

5 - Rating: All the components of the experiment (research, hypothesis, variables, procedure, results, observation, and conclusions) have been addressed and elaborated upon beyond expectations. Student has demonstrated exceptional understanding of the scientific method and has displayed the ability to calibrate and use even the most sophisticated scientific equipment. Student has demonstrated performance in a variety of process skills (observation, inference, prediction, hypothesis, data collection and analysis, communication, measurement, and results verification) at an exceptional level. Experiment was extremely well organized and easy to follow and interpret. There was overwhelming evidence of the student's knowledge and understanding of the scientific concepts and vocabulary addressed. The conclusion provides a clear explanation of the results. Inferences have been drawn from the conclusion along with possible recommendations for new avenues of experimentation, and noted real life applications as a result of the experiment.

4 - Rating: All the components of the experiment (research, hypothesis, variables, procedure, results, observations, and conclusions) have been addressed and elaborated upon. Student has demonstrated a clear understanding of the scientific method and has displayed the ability to correctly calibrate and use scientific equipment. Student has demonstrated performance in a variety of process skills (observation, inference, prediction, hypothesis, data collection and analysis, communication, measurement, and results verification) at an acceptable level. Experiment was well organized and reasonably easy to follow and interpret. There was acceptable evidence of the student's knowledge and understanding of the scientific concepts and vocabulary addressed. The conclusion included a reasonable explanation of the results, but the student failed to address one of the following: possible recommendations for new avenues of experimentation and/or noted real life applications as a result of the experiment.

3 - Rating: All the components of the experiment (research, hypothesis, variables, procedure, results, observations, and conclusions) have been addressed, but very little elaboration is present. Student has demonstrated an understanding of the scientific method and has displayed the ability to correctly use scientific equipment. Calibration skills are limited. Student has demonstrated performance in a reasonable number of process skills (observation, inference, prediction, hypothesis, data collection and analysis, communication, measurement, and results verification) at a basic level. Experiment was organized, but was somewhat difficult to interpret and follow. There was basic evidence of the student's knowledge and understanding of the scientific concepts and vocabulary addressed. The conclusion provided an explanation of the results, but failed to address either of the following: possible recommendations for new avenues of experimentation and noted real life applications as a result of the experiment.

2 - Rating: All but one of the components of the experiment (research, hypothesis, variables, procedure, results, observations, and conclusions) have been addressed, but no elaboration is present. Student has demonstrated some understanding of the scientific method and has displayed some ability to correctly use scientific equipment. Calibration skills are missing. Student has demonstrated performance in some of process skills (observation, inference, prediction, hypothesis, data collection and analysis, communication, measurement, and results verification) at a basic level. Experiment lacked organization making it difficult to interpret and follow. There was limited evidence of the student's knowledge and understanding of the scientific concepts and vocabulary addressed. The conclusion provided an unclear explanation of the results and failed to address the following: possible recommendations for new avenues of experimentation and noted real life applications as a result of the experiment.

1 - Rating: Several of the components of the experiment (research, hypothesis, variables, procedure, results, observations, and conclusions) have not been addressed and no elaboration is present. Student has demonstrated very little understanding of the scientific method and has displayed minimal ability to correctly use scientific equipment. Calibration skills are missing. Student has demonstrated limited performance in only a few of process skills (observation, inference, prediction, hypothesis, data collection and analysis, communication, measurement, and results verification). Experiment lacked organization making it difficult to interpret and follow. There was limited evidence of the student's knowledge and understanding of the scientific concepts and vocabulary addressed. The conclusion did not provide an explanation of the results, or was completely missing.