Skill	4: Excelling	3: Got it	2: Almost	1: Need Help		Scores		
PP1: Purpose Scientific Questions		Testable and measureable or observable using specific language	Testable and measureable or observable form but not specific to the parameters	Any other answer				
PP2: Prediction and Hypothesis	• Makes a prediction or hypothesis statement which is testable; is specific with details • Makes a hypothesis using an "If, then, because" scaffold: - relevant to the question - testable - includes a plausible reason with some detail (refers to research) • Written passive voice	• Makes a prediction or hypothesis statement which is testable and specific • Makes a hypothesis using an "If, then, because" scaffold: - relevant to the question - testable - includes a plausible reason (may refer to readings or research) • Written in passive voice	• Prediction or hypothesis is testable but is not specific • Makes a hypothesis using an "If, then, because" scaffold including a reason which may be relevant but is not clearly expressed • Not written in passive voice	• Prediction or hypothesis is not testable • Reason is missing or irrelevant • Any other answer				
PP3: Controlled Variables	Depending on the complexity of the investigation, most or all of the necessary variables are controlled and described in detail	Depending on the complexity of the investigation, most or all of the necessary variables are controlled	• Only controls some of the relevent variables • Controls variables that are not relevent	Any other answer				
PP3: Independent Variables		Students identify one independent variable (variable to be tested) that fits the question	Students identify one independent variable (variable to be tested) not relevant to the question	Any other answer				
PP3: Dependent Variables		Students identify one dependent variable (variable to be measured) that fits the question	Students identify one dependent variable (variable to be measured) not relevant to the question	Any other answer				
PP4: Planning an Investigation	Independently, students perform: • Procedures have a set of steps to test a single question • Procedural design minimizes experimental bias • Procedural design uses multiple trials to increase accuracy (if appropriate) • Procedures are detailed enough to be repeated by someone else • Procedures identify needed equipment and materials • Procedures identify relevant measurements and/or observations to be made • Procedures have one independent and one dependent variable and is written in a way that controls other major variables	Independently, students perform: • Procedures have a set of steps to test a single question • Procedures are detailed enough to be repeated by someone else • Procedures identify needed equipment and materials • Procedures identify relevant measurements and/or observations to be made • Procedures have one independent and one dependent variable and is written in a way that controls other major variables Students may require support with: • Procedural design minimizes experimental bias • Procedural design uses multiple trials to increase accuracy (if appropriate)	Independently, students perform 3-4 of the following: • Procedures have a set of steps to test a single question • Procedures are detailed enough to be repeated by someone else • Procedures identify needed equipment and materials • Procedures identify relevant measurements and/or observations to be made • Procedures have one independent and one dependent variable and is written in a way that controls other major variables • Students require support with other achievement indicators	Any other answer				

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PP5: Data Collection		Routinely collects data that is: Relevant, appropriately labeled, organized, and honest	• The type of data collected is irrelevant or needs support to identify relevancy • May be reluctant to record observations contrary to predictions	Any other answer				
PP5: Quantitative Data		Routinely measures accurately and records with units	• Accuracy is inconsistent and/or units are missing	Any other answer				
PP5: Qualitative Data		Routinely records observation with appropriate detail and not inferences	Observations very general not very detailed	Any other answer				
AE1: Identifying Relevant Attributes		Identifies relevant characteristics of items or organisms and groups by similarities and/or differences	Includes characteristics not relevant to the questions or problem	Any other answer				
AE1: Displaying Appropriately	Takes the initiative to display the data in various ways that reveal various patterns	Information is organized and displayed in a way appropriate to the data so that patterns and trends are apparent.	The type of organization of data selected does not reveal patterns and trends or is inappropriate to the type of data	Any other answer				
AE1: Use of Conventions with Displays	Graphs with proper x and y axis (Convention in science is for IV on the x axis and the DV on the y axis)	Charts and graphs have all appropriate titles and labels and information is plotted correctly	Data or information is plotted correctly but has a minor error in the labels may be present	Any other answer				
AE2: Patter, Trends, and Relationships	Independently communitcates additional pattern, trend or relationship	Describes an appropriate pattern, trend, or relationships	Pattern, trend, or relationship is unclear or overly simplistic	Any other answer				
AE2: Discrepancy	Change to the experimental design is suggested to eliminate the occurrence of the source of error	Identifies a discrepancy, noting a possible source of error	Identifies a discrepancy, but is unable to explain the possible source of error	Any other answer				
AE3: Concusion	• Reflects science understanding beyond that made available to students, indicating additional independent research • Compares findings to other similar investigations	• Reflects science understanding and give some reason for results based on evidence • States a relationship between variables and supporting evidence • Is relevant to initial question and prediction/hypothesis • May include suggestions to improve experimental design	Restates only the recorded results and observations or is a result of flawed reasoning	Any other answer				
AE4: Applications of Learning		Generally, demonstrates evidence of one or more of the following: • Justifies statements by making connections to scientific knowledge, • Displays evaluation of the concept taking into account other scientific knowledge, • Identifies how findings can be applied to other situations • Evaluates the relevancy and reliability of sources • Extending idea to foster a new idea	Needs support or prompting to: • Justify statements by making connections to scientific knowledge, • Display evaluation of the concept taking into account other scientific knowledge, • Identify how findings can be applied to other situations • Evaluate the relevancy and reliability of sources • Extend an idea to foster a new idea	Any other answer				