JSD High School Science: Inquiry

Use the processes of science: these processes include asking questions, observing, predicting, describing, classifying, measuring, interpreting data, inferring, communicating, controlling variables, developing models and theories, analyzing data, making generalizations, hypothesizing, predicting and experimenting.

- *Use scientific measuring tools properly to obtain data*
- *Make observations of phenomena, understanding the difference between observing and inferring.*
- *Use graphing techniques for presenting data*
- *Properly interpret experimental data presented by means of tables, equations and graphs.*
- *Communicate and interpret results of scientific experiments through reports and presentations.*

Design and conduct scientific investigations using appropriate instruments.

- *Design properly and carry out scientific experiments to answer a question or test a hypothesis using independent, dependent variables and controls.*
- *Make qualitative and quantitative observations*
- *Formulate and communicate conclusions that are logical and supported by evidence.*
- *Examine methodology and conclusions to identify bias and determining if evidence logically supports the conclusions.*
- *Analyze data statistically (i.e., mean, median, mode),*
- *Draw logical conclusions from experimental data and use data to make predictions about related situations.*
- *Review pertinent literature*
- *Compare results to others, suggest further experimentation, and apply their conclusions to other problems.*

Understand that scientific inquiry often involves different ways of thinking, curiosity and the explorations of multiple paths.

- *Develop several possible approaches to solving a problem.*
- *Recognize and analyze multiple explanations and models; use this information to revise their own explanation or model if necessary.*
- *Question, research, model, simulate, and test a solution to a problem.*

Understand that personal integrity, skepticism, openness to new ideas, creativity, collaborative effort, logical reasoning are all aspects of scientific inquiry.

- *Demonstrate multiple aspects of scientific inquiry in conducting scientific investigations.*
- *Recognize the role of curiosity, creativity, imagination, and a broad knowledge base on scientific advancements.*

Employ ethical standards, including unbiased data collection and factual reporting of results

- *Demonstrate ethical standards in conducting investigations and experimentation.*
- *Evaluate the credibility of cited sources when conducting scientific investigations.*

Employ strict adherence to safety procedures in conducting scientific investigations

- *Use scientific measuring tools properly to obtain data*
- *Demonstrate an understanding of safety procedures used in conducting scientific investigations.*