

Reasoning: Scientific Reasoning

Students' ability to observe, hypothesize, test, analyze, interpret and reflect on scientific phenomena

Criteria	Proficient (able or skilled)	Developing (progressing)	Insufficient (incomplete or unsatisfactory evidence)
observation observes and describes a phenomena and forms a question	student describes phenomena and forms a question	student, with guidance, describes phenomena and forms a question	student does not describe phenomena or form a question
hypothesis hypothesizes reasons and identifies the variables for the phenomena	student develops a hypothesis and identifies variables correctly	student, with guidance, develops a hypothesis and identifies variables	student does not develop a hypothesis or identify variables
experimentation designs and conducts an experiment to test the hypothesis and controls for variables	student designs and conducts an experiment including controls for key variables	student, with guidance, designs and conducts an experiment including controls for variables	student does not design and conduct an experiment and/or control for variables
analysis analyzes results	student analyzes results while accounting for key variables	student analyzes results	student does not analyze results
interpretation interprets results to confirm or reject the hypothesis	student interprets results to confirm or reject the hypothesis	student attempts to interpret results to confirm or reject the hypothesis	student does not interpret results to confirm or reject the hypothesis
reflection reflects on experiment to determine implications and limitations	student proposes modifications based on implications and limitations of the experiment	student recognizes implications and limitations of the experiment	student does not recognize implications or limitations of the experiment