

## 2011-12 Official Scientific Inquiry Scoring Guide Grades 4 and 5

	<p style="text-align: center;"><b>SI- Forming a Question or Hypothesis</b></p> <p style="text-align: center;"><i>Based on observations and science principles, select a question or form a hypothesis that can be tested through scientific investigation.</i></p>	<p style="text-align: center;"><b>SI- Designing an Investigation.</b></p> <p style="text-align: center;"><i>Design a scientific investigation to answer a question or test hypotheses using appropriate tools and procedures.</i></p>	
<b>5/6**</b>	<ul style="list-style-type: none"> <li>• Forms a testable question or forms a hypothesis that clearly guides the design of a scientific investigation.</li> <li>• Uses specific observations and relevant scientific principles from multiple sources to independently frame an investigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Designs a practical and reproducible plan that includes relevant tools and detailed procedures for an investigation that addresses the question.</li> <li>• Describes a logical procedure that identifies the relevant variables for collecting accurate and reliable data.</li> <li>• Presents a detailed, systematic plan and procedure incorporating consistent multiple trials or observations.</li> </ul>	<b>5/6**</b>
<b>4</b>	<ul style="list-style-type: none"> <li>• Selects a testable question or forms a hypothesis that can be used to guide the design of a scientific investigation.</li> <li>• Uses observations and relevant scientific principles to frame an investigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Designs a practical plan that includes relevant tools and procedures for an investigation that addresses the question.</li> <li>• Describes a logical procedure for collecting appropriate data.</li> <li>• Presents a plan and procedure incorporating multiple trials or observations.</li> </ul>	<b>4</b>
<b>3</b>	<ul style="list-style-type: none"> <li>• Selects a question or forms a hypothesis that is of partial use in the design of a scientific investigation.</li> <li>• Uses observations and limited scientific principles to frame an investigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Designs a plan that includes inappropriate tools or limited procedures which do not adequately address the question.</li> <li>• Describes a procedure which would result in the collection of incomplete data.</li> <li>• Presents a plan and procedure with inadequate trials or observations.</li> </ul>	<b>3</b>
<b>1/2*</b>	<ul style="list-style-type: none"> <li>• Selects a question that cannot be used to design a scientific investigation or form a hypothesis.</li> <li>• Uses limited observations and/or scientific principles to frame an incomplete investigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Designs a plan that does not address the question.</li> <li>• Describes a procedure which would result in the collection of inaccurate or irrelevant data.</li> <li>• Presents a plan and procedure lacking multiple trials or observations.</li> </ul>	<b>1/2*</b>

\*\*5 for preponderance (most) completed, 6 for all completed.

\* 2 for preponderance (most) completed, 1 for less completed or missing.

A hypothesis may be stated as a claim.

Observations may include background information.

## 2011-12 Official Scientific Inquiry Scoring Guide Grades 4 and 5

	<b>SI- Collecting and Presenting Data</b> <i>Collect, record, and organize data from investigations.</i> (Student-directed with Teacher Support)	<b>SI- Analyzing and Interpreting Results</b> <i>Summarize, analyze and interpret data from an investigation that address the identified question or hypothesis.</i>	
<b>5/6**</b>	<ul style="list-style-type: none"> <li>• Designs a detailed and logical data-collection method using multiple trials and/or observations.</li> <li>• Collects and records accurate and detailed data or observations consistent with the planned procedure.</li> <li>• Accurately transfers original data into a useful format that enhances thorough analysis (e.g., graphs, tables, diagrams, averages, percentages) with minimal teacher support.</li> </ul>	<ul style="list-style-type: none"> <li>• Uses data or observations to clearly support and defend a thorough and accurate explanation of the results.</li> <li>• States a detailed conclusion which identifies and explains variables, errors, limitations, patterns in the data, and possible explanations for results. Suggests changes to improve the investigation.</li> <li>• Clearly communicates and identifies the most relevant results to fully address the original question or hypothesis.</li> </ul>	<b>5/6**</b>
<b>4</b>	<ul style="list-style-type: none"> <li>• Designs an appropriate data-collection method using multiple trials and/or observations.</li> <li>• Collects and records data or observations generally consistent with the planned procedure.</li> <li>• Transfers original data into a useful format for analysis (e.g., graphs, tables, diagrams, averages, percentages).</li> </ul>	<ul style="list-style-type: none"> <li>• Uses data or observations to support a reasonable explanation of the results.</li> <li>• States a conclusion which discusses some variables, errors, limitations, patterns in the data, or possible explanations for results.</li> <li>• Clearly communicates the relationship of the results to the original question or hypothesis.</li> </ul>	<b>4</b>
<b>3</b>	<ul style="list-style-type: none"> <li>• Designs a data-collection method lacking multiple trials and/or observations.</li> <li>• Collects and records data or observations only partially consistent with the planned procedure.</li> <li>• Transfers original data into a format that is not useful for analysis (e.g., graphs, tables, diagrams, averages, percentages) or is presented with several errors.</li> </ul>	<ul style="list-style-type: none"> <li>• Partially uses the data or observations to support a reasonable explanation of the results.</li> <li>• States a conclusion with minimal discussion of variables, errors, limitations, patterns in the data, or possible explanations for results.</li> <li>• Partially communicates the relationship of the results to the original question or hypothesis.</li> </ul>	<b>3</b>
<b>1/2*</b>	<ul style="list-style-type: none"> <li>• Designs a data-collection method that includes unclear or disconnected observations.</li> <li>• Collects and records data or observations inconsistent with the planned procedure.</li> <li>• Incorrectly or does not transfer original data.</li> </ul>	<ul style="list-style-type: none"> <li>• Data or observations are not connected to an explanation of the results.</li> <li>• States a conclusion that does not include discussion of variables, errors, limitations, patterns in the data, or possible explanations for results.</li> <li>• Inaccurately communicates the relationship of the results to the original question or hypothesis.</li> </ul>	<b>1/2*</b>

\*\*5 for preponderance (most) completed, 6 for all completed.

\* 2 for preponderance (most) completed, 1 for less completed or missing.

(Teacher guidance in safety and ethics is necessary.)