

## Skills for Student-Designed Scientific Inquiry

<b>Asking good questions</b>	<p>Help students gain practice creating useful questions with starter stems, such as:</p> <ul style="list-style-type: none"><li>• What would happen if...?</li><li>• How could we make...happen?</li><li>• How would it change...if...?</li><li>• What is the effect of...?</li><li>• What are the indicators of...?</li><li>• Is there a better way to...?</li><li>• What are the dangers of...?</li><li>• How does...?</li><li>• How can...?</li></ul>
<b>Creating a hypothesis</b>	<p>Students often need to suggest an answer to a question, by making an educated guess based on past experiences or observations, before conducting experiments or researching.</p> <p>Students need to understand that a hypothesis is a testable statement that explains a set of observations that can be supported or refuted by experiments or observation.</p> <p>Practice creating hypotheses with your students by using fill-in-the-blank statements, such as:</p> <ul style="list-style-type: none"><li>• If...then...</li><li>• [doing x]...[will cause y].</li></ul>
<b>Designing procedures</b>	<p>Rather than providing all the steps for students, provide students with prompts where they determine:</p> <ul style="list-style-type: none"><li>• What do we need to find out?</li><li>• What type of investigation would best meet those needs?</li><li>• What supplies and resources do we need?</li><li>• What one variable will change?</li><li>• What procedures will we follow?</li></ul>
<b>Designing methods for documenting and representing data</b>	<p>When designing methods for documenting data, have students ask themselves:</p> <ul style="list-style-type: none"><li>• Specifically what data do we need to document to identify all dependent variables, independent variables, controlled variables, factors, and background details?</li><li>• What type of form, table, or other tool should we use to collect and record data?</li><li>• In what way will we report and reflect on the data? Does that change the data we need to collect?</li></ul>