

Grade 8 Scientific Literacy: What the 2022-23 Provincial Assessment Revealed about Student Understanding

Provincial assessments are designed to discover what students understand about curricular outcomes and to identify the degree to which specific skills have been mastered at a given point in time. Assessment items, their correct responses, and distractors are systematically constructed to pinpoint students' understandings and misconceptions. In addition to providing an overview of student performance at the provincial, district, and school level, the analysis of response patterns provided in this document has an application for classroom use.

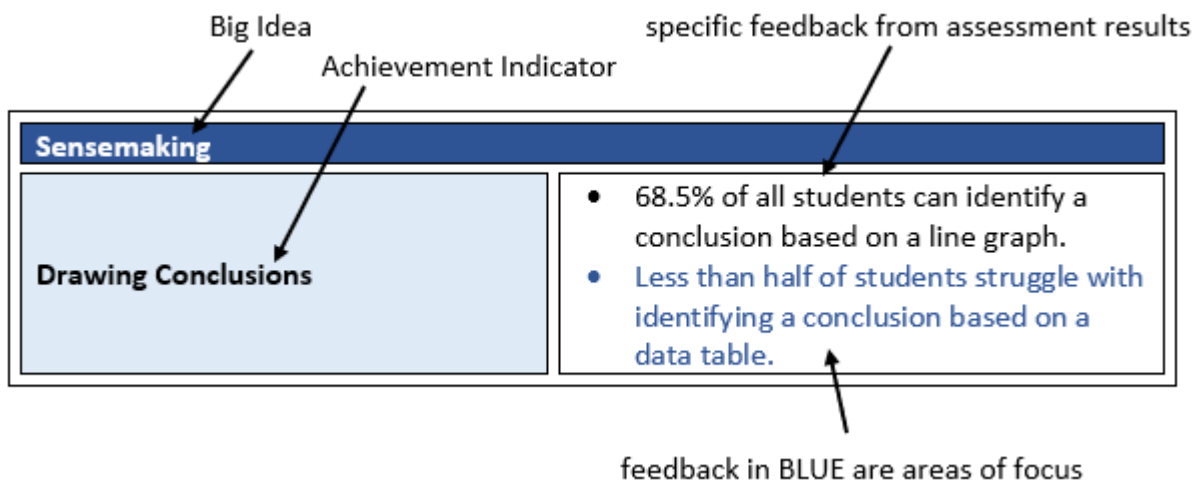
How to use this feedback for your classroom

The statements in the feedback section reflect the collective understanding of a large number of students at this grade level. This may include some or many of your students.

A checkpoint: This information can be applied to the development of your formative assessments to help you identify whether any of your students are missing the highlighted concepts.

Instructional design: Given the widespread nature of the gaps identified and the fact that some of the skills involved would have been included in the curricula of previous years, this information could be of assistance with multigrade planning.

Example:



In the example above, the first bullet reveals that 68.5% of students can identify a conclusion based on a line graph. The second bullet indicates a widespread misconception pertaining to the concept of a conclusion when it refers to a data table.

Investigation	
Propose Testable Questions/Problems	<ul style="list-style-type: none"> 63.75% of all students can identify a testable question written in standard form about familiar topics. More than half of students can use a data table to identify the testable question. Many students struggle to identify the difference between a testable question and a general question.
Identify and Describe Variables	<ul style="list-style-type: none"> 72.6% of stronger students understand an independent, control, and dependent variable. More than half of all students struggle to identify a specific type of variable (control, independent, and dependent). More than half of students struggle with the terminology regarding variables.
Plan Investigations & Fair Test	<ul style="list-style-type: none"> 79.4% of students can identify what needs to be changed to ensure a fair test. More than half of all students struggle to identify the next step for a straight-forward list for a procedure.
Appropriate Tools	<ul style="list-style-type: none"> 88.65% of all students can select the appropriate scientific tool for a specific investigation. Some students struggle with selecting the proper tool, especially if it pertains to a measurement.
Collect and Represent Data	<ul style="list-style-type: none"> 84.6% of stronger students can distinguish the difference between qualitative and quantitative data. More than half of students struggle to use the meniscus to measure volume in a graduated cylinder. More than half of students struggle with the terminology of quantitative and qualitative data.

Sensemaking	
Classify, Organize & Display Data	<ul style="list-style-type: none"> 81.3% of all students can plot the correct points on a line graph. 87.3% of all students can draw the correct columns on a bar graph. Most strong students were able to correctly label the X and Y axes. More than half of students struggled to give a proper title to the bar graph.

**GRADE 8 SCIENTIFIC LITERACY ASSESSMENT
REPORT: PERFORMANCE FEEDBACK BY OUTCOMES/STANDARDS**

<p>Sources of Error</p>	<ul style="list-style-type: none"> • 70.2% of all students can identify sources of error when analyzing a procedure or graph. • Some students struggle with the concept of a source of error.
<p>Analyze Data</p>	<ul style="list-style-type: none"> • 69.78% of all students have success with analysis-style items. • More than half of students can identify a single data trend in a line graph. • Some students have difficulty analyzing information in a data table.
<p>Reliable Sources</p>	<ul style="list-style-type: none"> • 93.9% of strong students can identify reliable and non-reliable sources for research purposes. • Less than half of students are not able to determine the difference between reliable and non-reliable sources for research purposes.
<p>Drawing Conclusions</p>	<ul style="list-style-type: none"> • 78.05% of all students can identify a conclusion based on procedure and a data table. • Less than half of students struggle with identifying a conclusion based on a line graph.

<p>Responsible and Sustainable Application</p>	
<p>Lab Safety</p>	<ul style="list-style-type: none"> • 92.2% of all students can identify safe lab practices.
<p>Adaptation and Mitigation for climate change</p>	<ul style="list-style-type: none"> • 77% of strong students are able to identify specific adaptation and mitigation measures to assist with the effects of climate change. • Most students are unable to identify four adaptation and mitigation measures, while provided with definitions.

