

Provincial Assessment Results 2023-24

GRADES 4, 6, AND 8 SCIENTIFIC LITERACY

BACKGROUND

Scientific Literacy Assessments were administered to Grade 4, 6, and 8 students in the spring of 2024 to assess scientific literacy skills. All three assessments included topics in three outcome strands: *Investigation* (formerly *Initiate and Plan & Perform and Record*), *Sensemaking* (formerly *Analyze and Explain*), and *Responsible and Sustainable Application*.

In keeping with the Department's assessment protocols, test items were developed by groups of New Brunswick educators, including Grades 4, 6, and 8 classroom teachers and experienced subject area experts. Assessment items were then field-tested and verified through a provincial pilot.

Since 2021-22, provincial assessments have been administered using an online platform. Students have unlimited access to an online assessment practice to familiarize themselves with the platform prior to the assessment period.

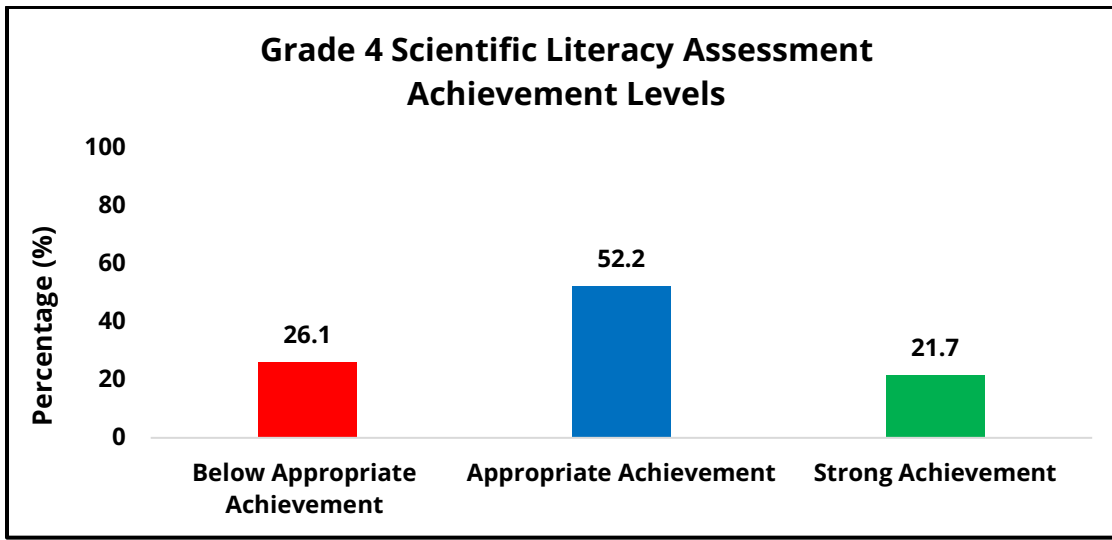
In 2021-22 a mode study was conducted to identify any impact or bias resulting from migration to the online platform. Traditional paper versions of the tests were administered to ten percent of students, while the rest completed the tests online. Results of statistical analyses indicated:

- Online versions were statistically equivalent to the paper versions.
- Test reliability was comparable to the previous year.
- Test items performed without bias for students in all programs of study and for students with accommodations.

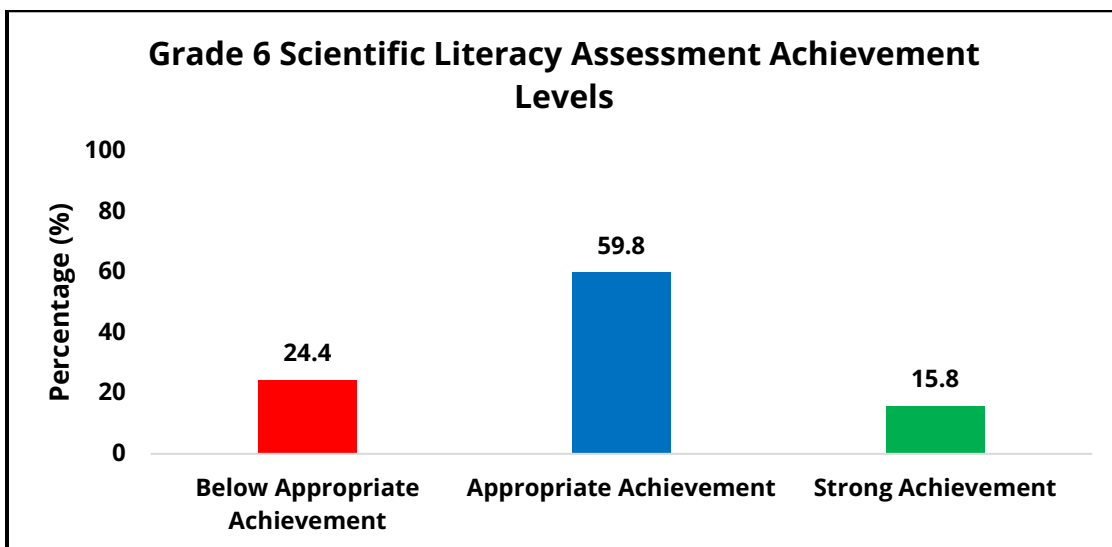
All Scientific Literacy assessments are fully bilingual and students may complete the assessment in the language of their choice. Warranted accommodations are provided to include as many students as possible in the provincial assessment program. Universal accommodations included coloured background, text-to-speech, and text magnification. In certain circumstances, it is necessary and fitting for students to be exempted from participation. This is the case when the testing format is not suitable for a student to demonstrate their learning, even with accommodations. For further information, please consult the [Provincial Assessment Program: Protocols for Accommodations and Exemptions](#).

ACHIEVEMENT RESULTS

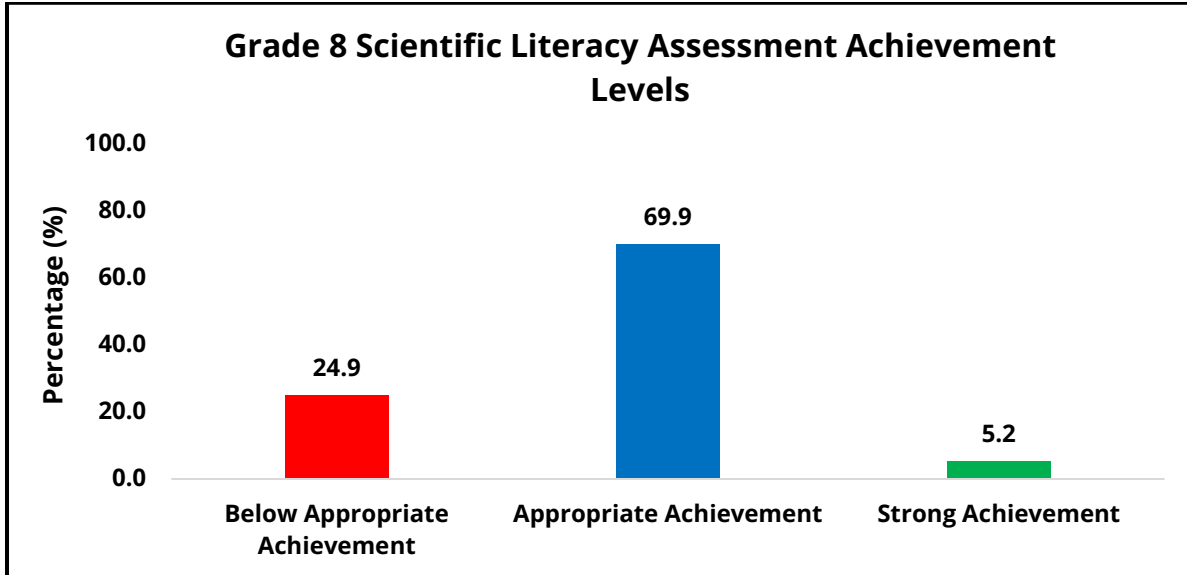
Of 5812 Grade 4 students, 73.9% were successful (21.7% attained *Strong Achievement* and 52.2% attained *Appropriate Achievement*). The 26.1% of the students in the *Below Appropriate Achievement* group includes exempted students (4.8%) but excludes students who are absent during the assessment administration period (112).



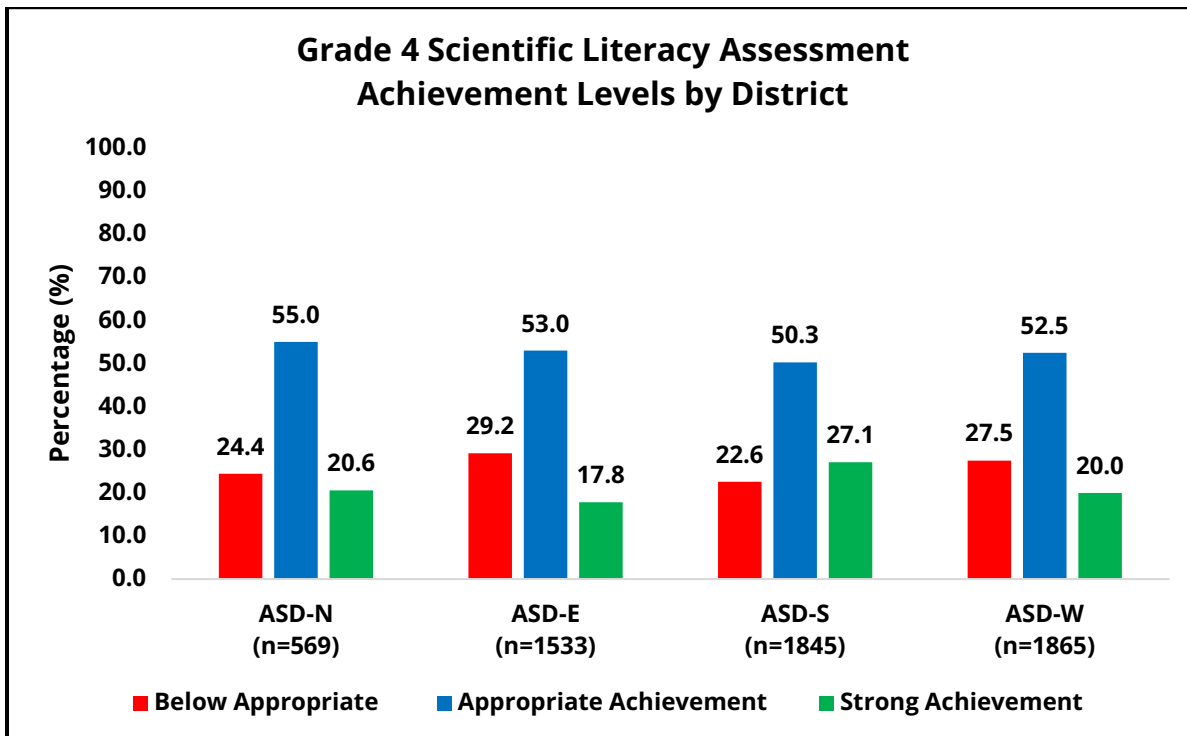
Of 5712 Grade 6 students, 75.6% were successful (15.8% attained *Strong Achievement* and 59.8% attained *Appropriate Achievement*). The 24.4% of the students in the *Below Appropriate Achievement* group includes exempted students (4%) but excludes students who are absent during the assessment administration period (185).



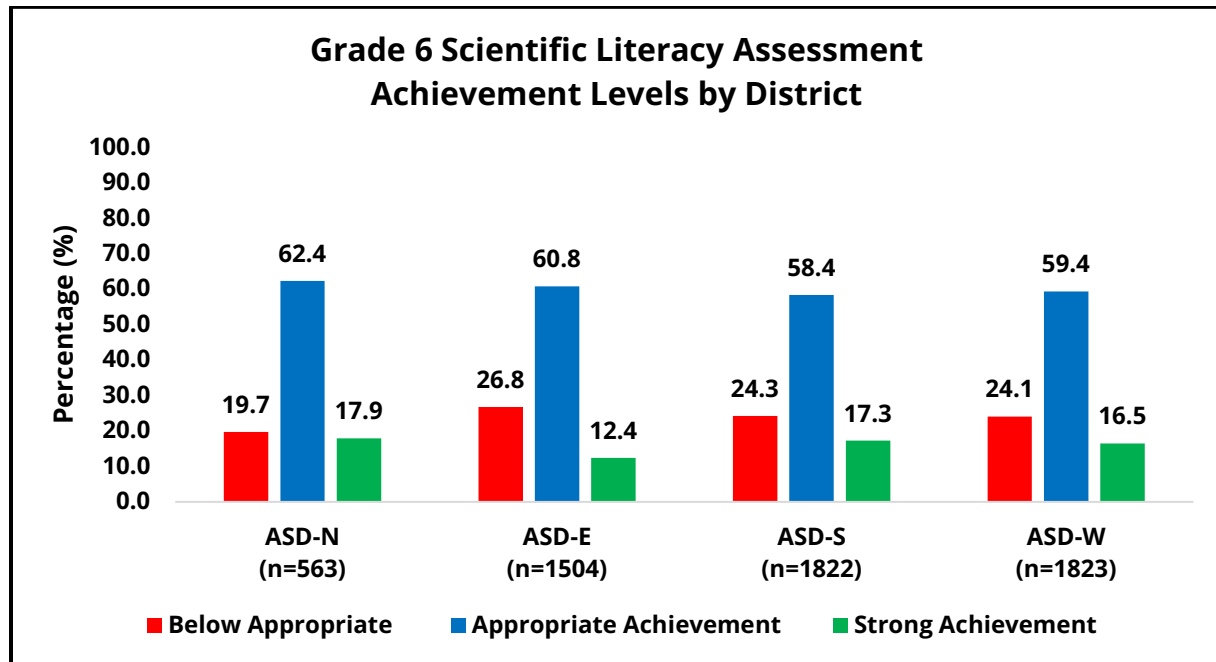
Of 5664 Grade 8 students, 75.1% were successful (5.2% attained *Strong Achievement* and 69.9% attained *Appropriate Achievement*). The 24.9% of the students in the *Below Appropriate Achievement* group includes exempted students (3.1%) but excludes students who are absent during the assessment administration period (307).



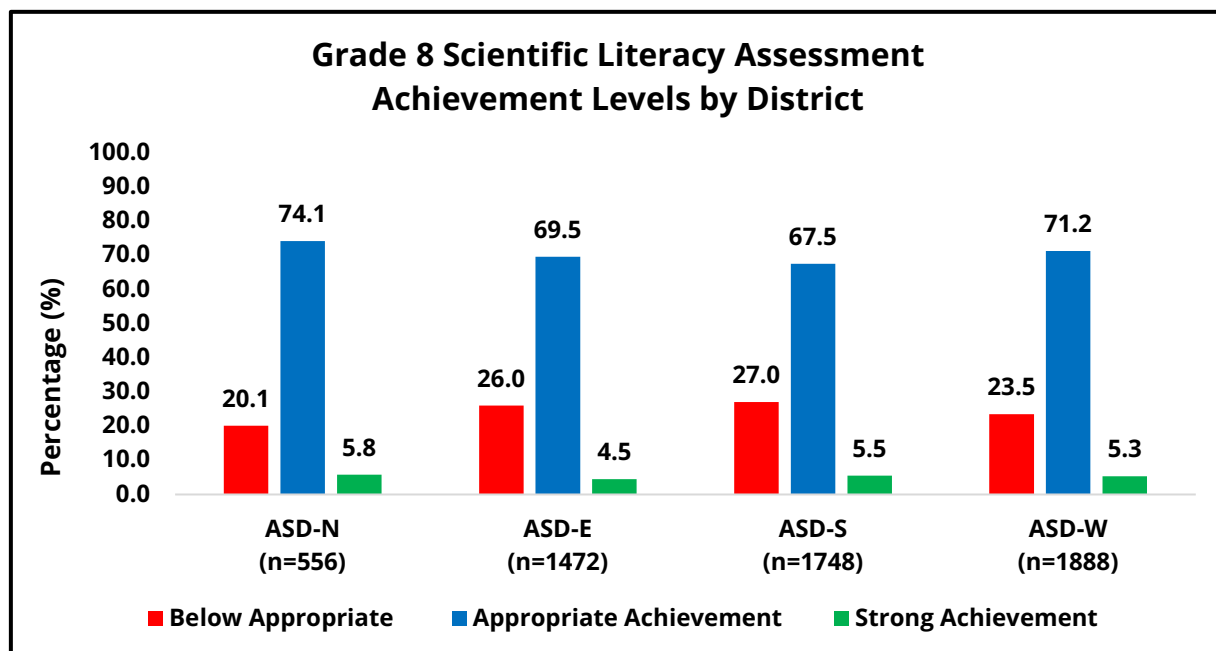
The graph below indicates the achievement levels for Grade 4 for each school district. District success rates are as follows: ASD-N = 75.6%; ASD-E = 70.8%; ASD-S = 77.4%; ASD-W = 72.5%.



The graph below indicates the achievement levels for Grade 6 for each school district. District success rates are as follows: ASD-N = 80.3%; ASD-E = 73.2%; ASD-S = 75.7%; ASD-W = 75.9%.



The graph below indicates the achievement levels for Grade 8 for each school district. District success rates are as follows: ASD-N = 79.9%; ASD-E = 74.0%; ASD-S = 73.0%; ASD-W = 76.5%.



Exemption rates for the *Scientific Literacy Assessments* are displayed in the tables below.

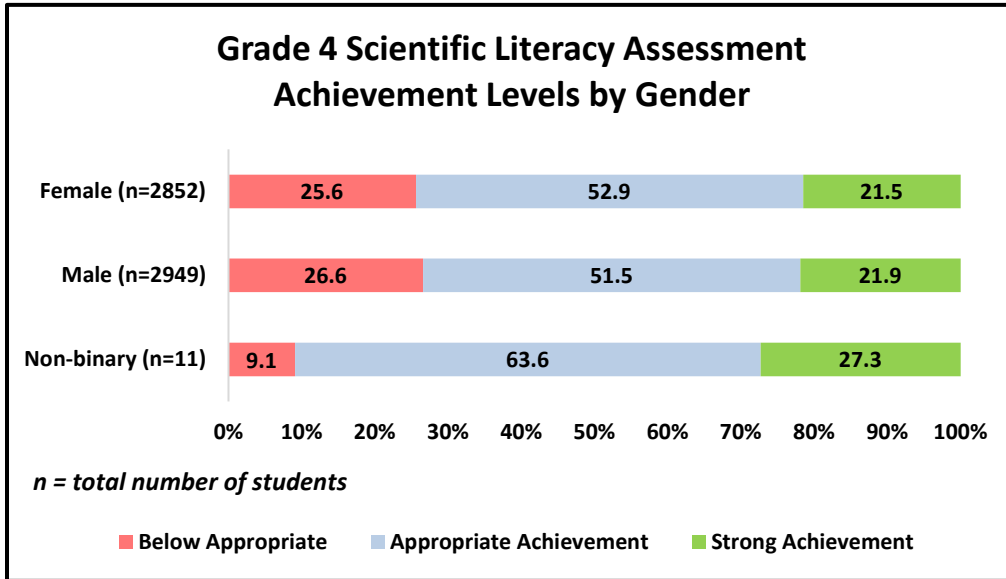
Grade 4 Scientific Literacy Assessment Exemption Rates				
District	Number of Students	Number of Students Exempt	Percent Exempt	Success Rate Excluding Exemptions
Province	5812	280	4.8	77.7
ASD-North	569	14	2.5	77.5
ASD-East	1533	103	6.7	75.9
ASD-South	1845	86	4.7	81.2
ASD West	1865	77	4.1	75.7

Grade 6 Scientific Literacy Assessment Exemption Rates				
District	Number of Grade 6 Students	Number of Exempt Students	Percent Exempt	Success Rate Excluding Exemptions
Province	5712	231	4.0	78.8
ASD-North	563	9	1.6	81.6
ASD-East	1504	62	4.1	76.4
ASD-South	1822	87	4.8	79.5
ASD West	1823	73	4.0	79.1

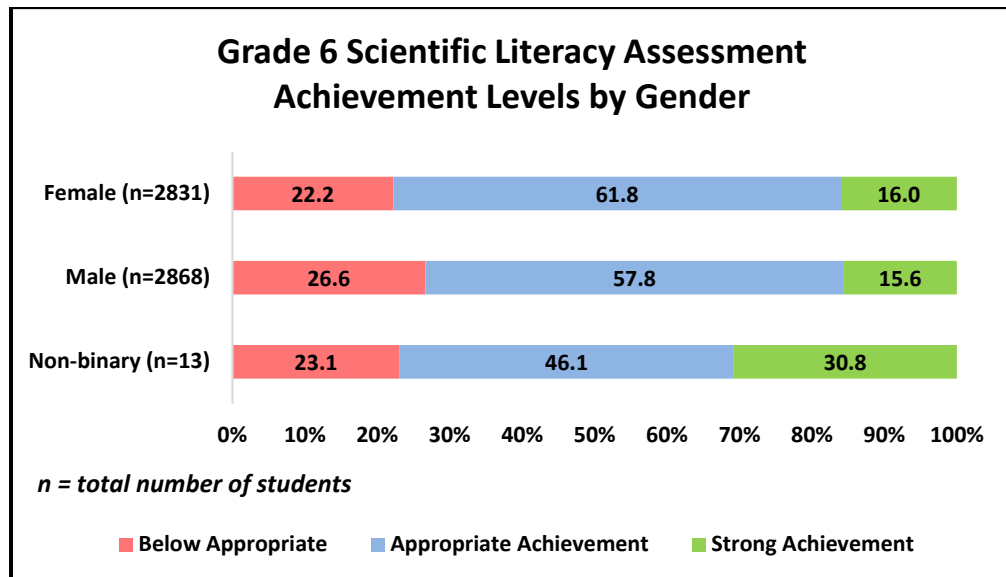
Grade 8 Scientific Literacy Assessment Exemption Rates				
District	Number of Students	Number of Students Exempt	Percent Exempt	Success Rate Excluding Exemptions
Province	5664	173	3.1	77.4
ASD-North	556	9	1.6	81.2
ASD-East	1472	48	3.2	76.4
ASD-South	1748	60	3.4	75.6
ASD West	1888	56	3.0	78.8

The following graphs illustrate achievement levels by gender. Gender designations for this analysis were retrieved from administrative data contained in the provincial Student Information System.

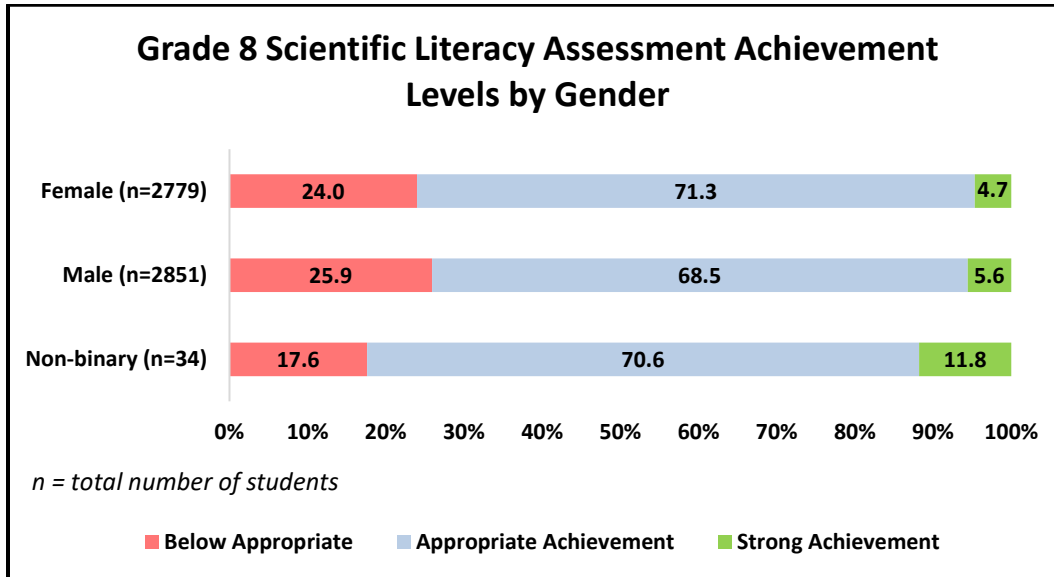
Grade 4: Combining *Appropriate* and *Strong* achievement levels, the success rate was 74.4% for female students, 73.4% for male, and 90.9% for non-binary students. Although there are few students in the latter group (11), results are included to provide a complete provincial picture and a baseline for anticipated increases in the number of students in this group over time.



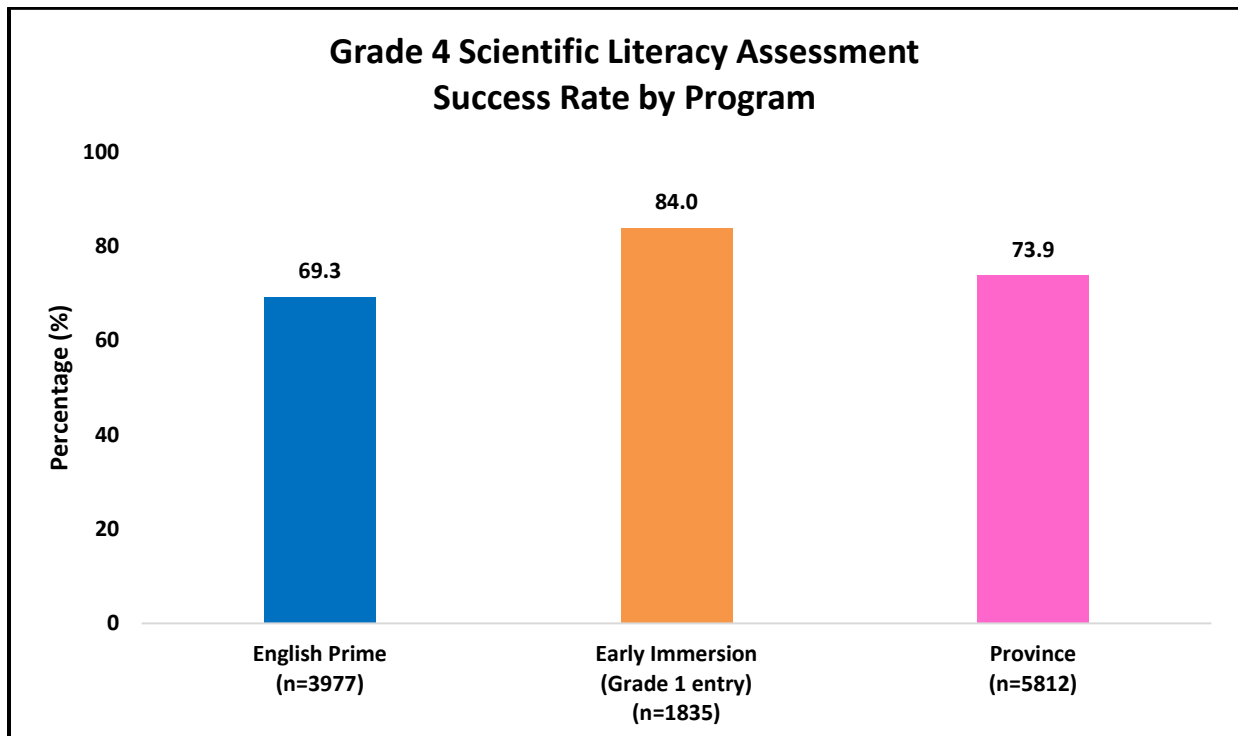
Grade 6: Combining *Appropriate* and *Strong* achievement levels, the success rate was 77.8% for female students, 73.4% for male, and 76.9% for non-binary students. Although there are few students in the latter group (13), results are included to provide a complete provincial picture and a baseline for anticipated increases in the number of students in this group over time.

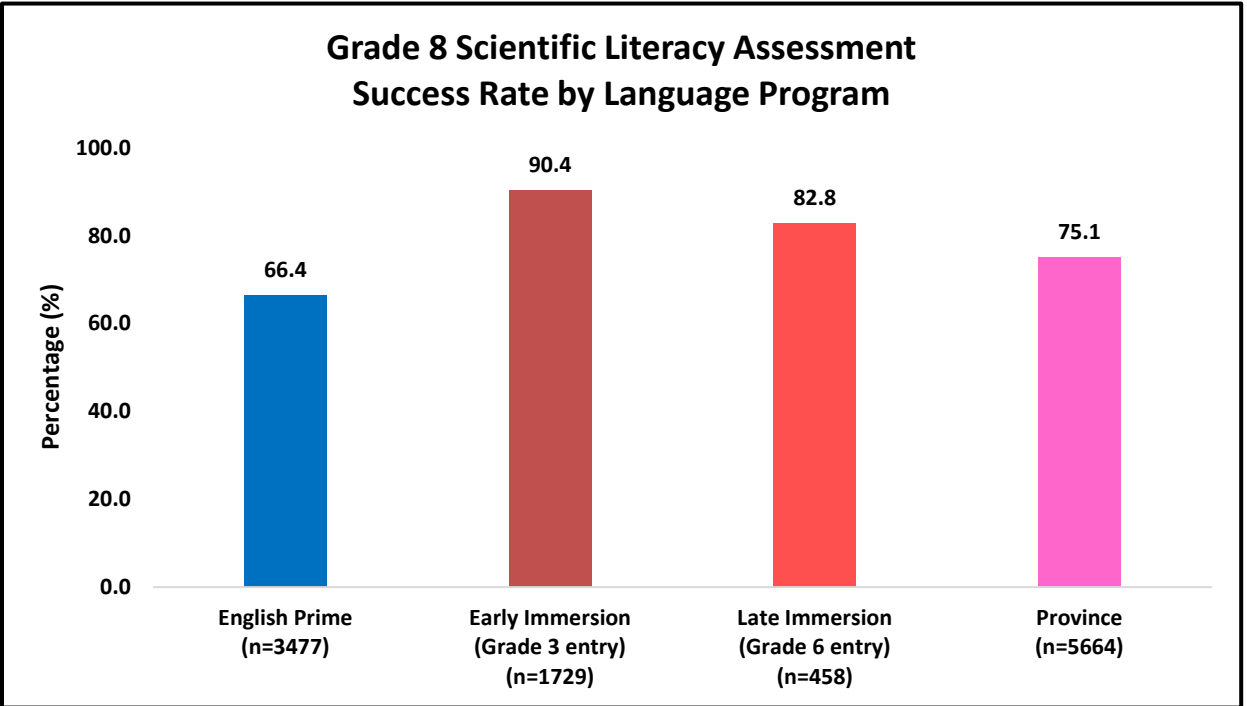
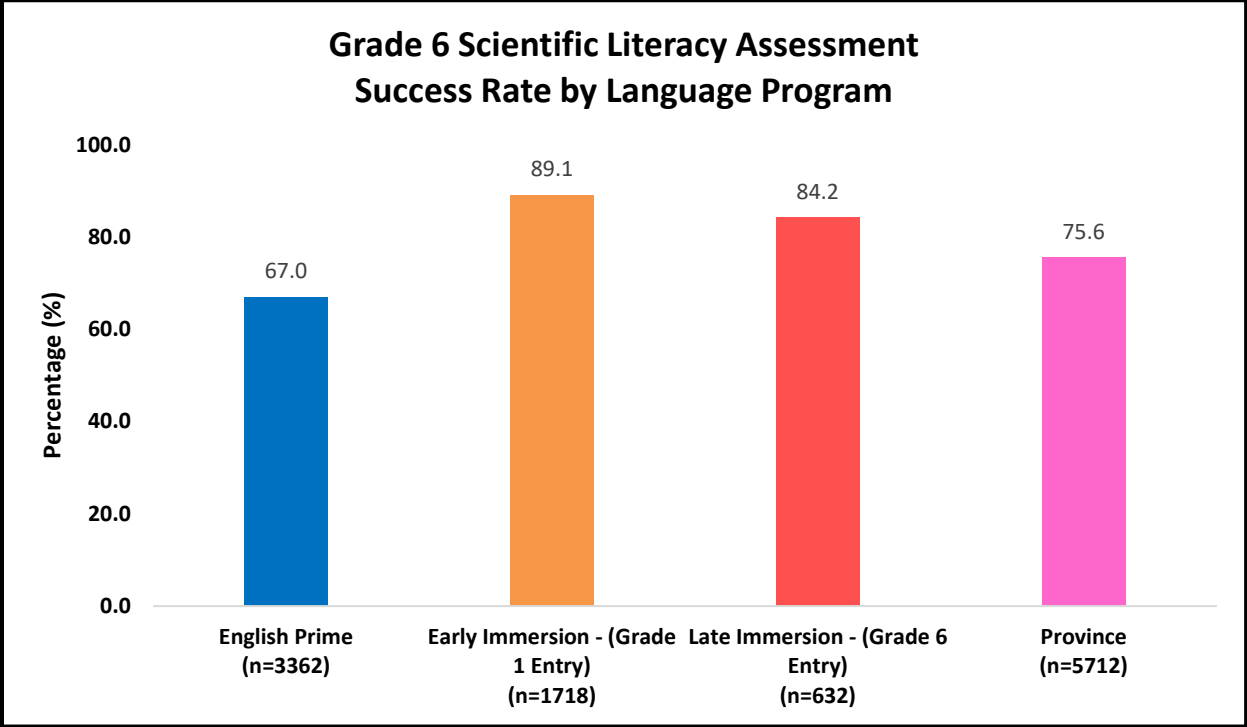


Grade 8: Combining *Appropriate* and *Strong* achievement levels, the success rate was 76.0% for female students, 74.1% for male, and 82.4% for non-binary students, and does not include exempted students. Although there are few students in the latter group (34), results are included to provide a complete provincial picture and a baseline for anticipated increases in the number of students in this group over time.

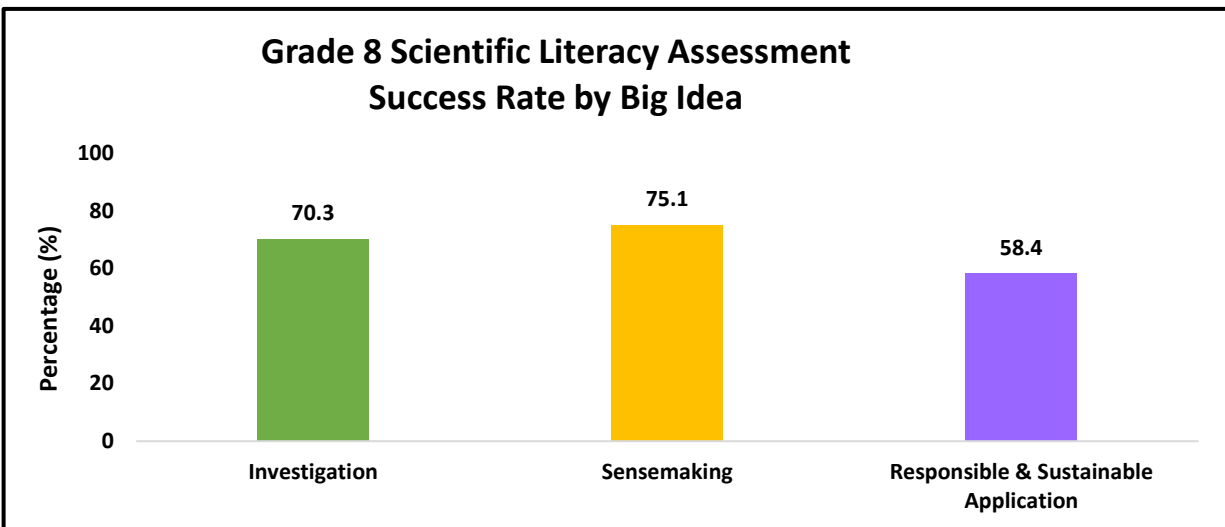
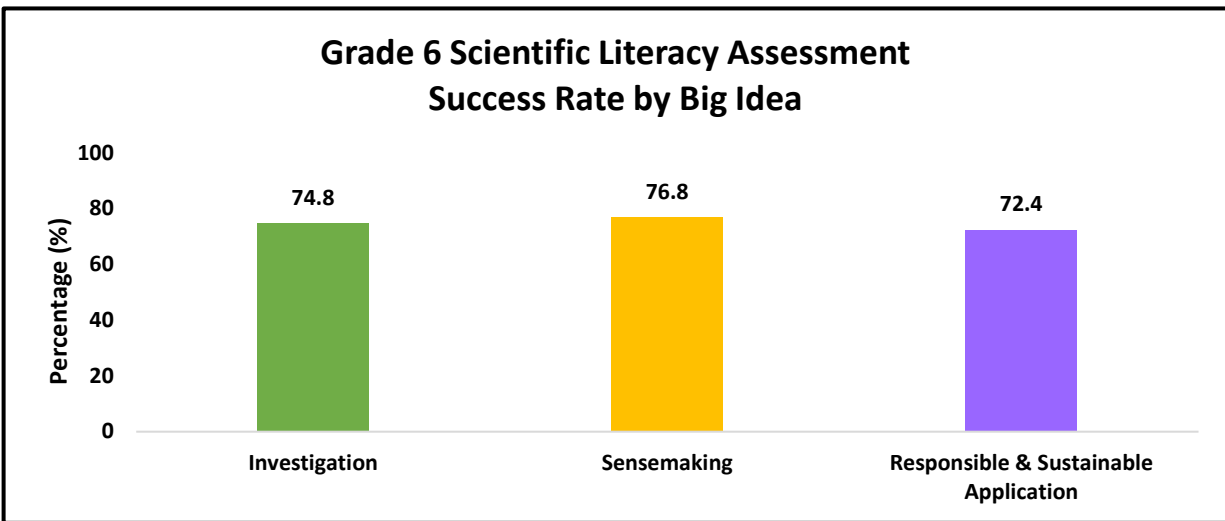
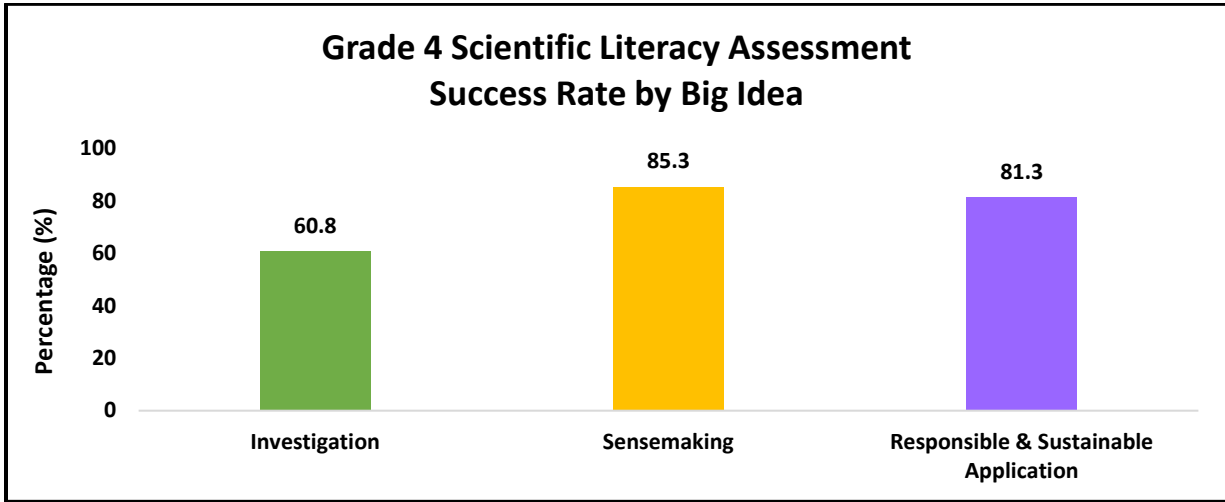


The graphs below indicate student success rates by language program.

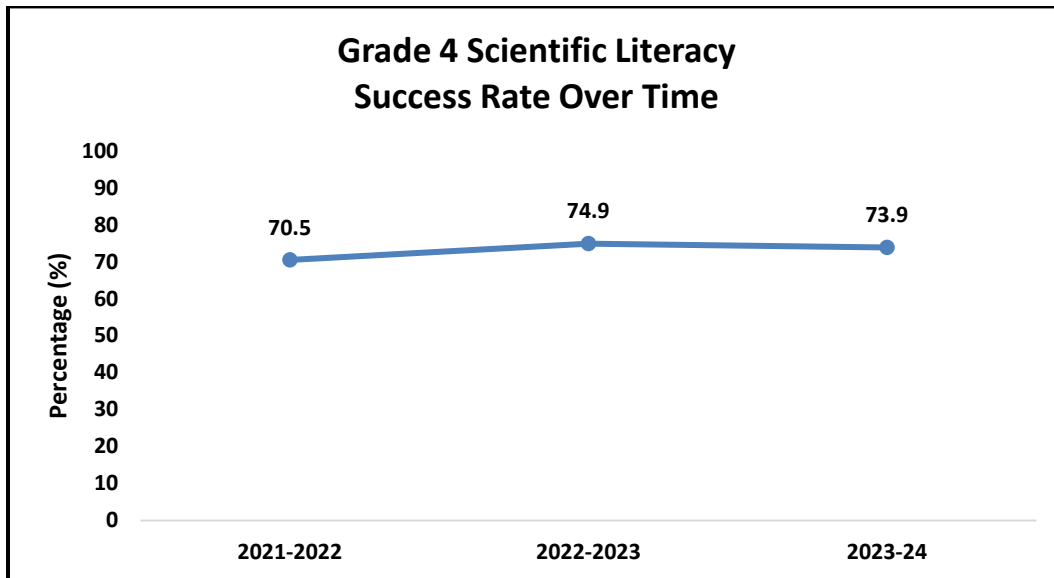




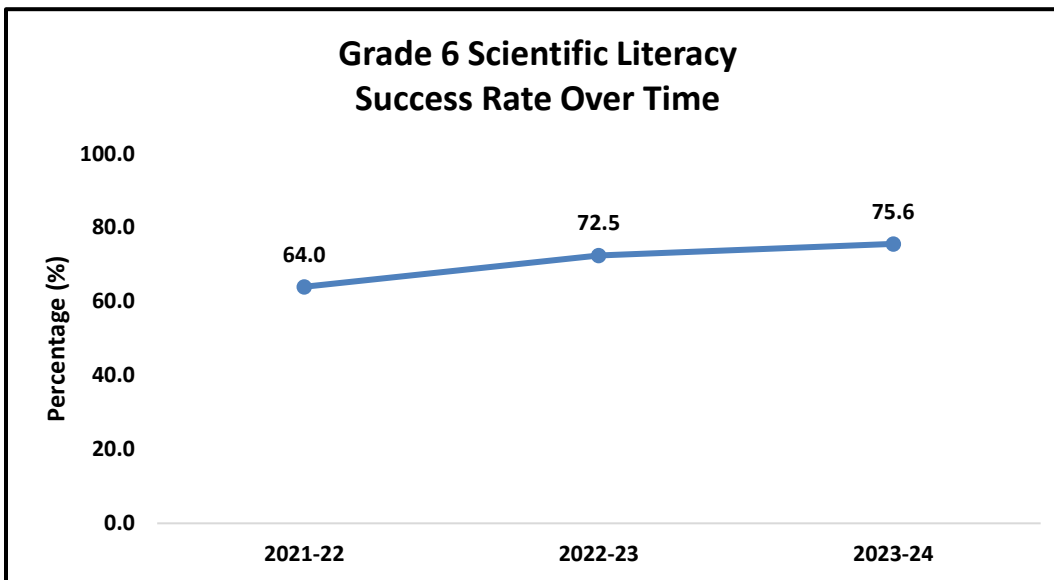
The assessment includes three Big Ideas: *Investigation* (formerly *Initiate and Plan & Perform and Record*), *Sensemaking* (formerly *Analyze and Explain*), and *Responsible and Sustainable Application*.



The following graph displays Grade 4 success rates over the past three years. There is no significant difference in the performance of the 2023-24 Grade 4 cohort compared to the previous cohort of students.



There was a statistically significant increase in performance of Grade 6 students compared to last year.



Trendlines are not yet available for the Grade 8 Scientific Literacy Assessment; it was first implemented in 2022-23. The provincial success rate increased by 7.9 percentage points since 2022-23. This difference was statistically significant.

DESCRIPTION OF THE *APPROPRIATE ACHIEVEMENT LEVEL* FOR THE *SCIENTIFIC LITERACY SKILLS – GRADE 4*

Investigation

- I can ask questions about familiar objects and events that lead to simple investigations.
- I can make predictions, based on prior knowledge, about objects and events.
- I can identify the measured variable.
- I can identify the variable being changed.
- I can suggest a problem statement for a technological solution.
- I can suggest steps to conduct a fair test to answer a question.
- I can record data using formal measurements (where appropriate).

Sensemaking

- I can create simple labelled drawings, tables, bar graphs, or other formats to represent data.
- I can classify objects and events according to one or more properties.
- I can identify new questions that result from investigations.
- I can review ideas/useful information that can be used to answer initial questions.
- I can review ideas/useful information that can be used to solve a problem.

Responsible and Sustainable Application

- I can identify human behaviours that can lead to responsible use of Earth materials.
- I can safely use equipment while carrying out an inquiry.
- I can distinguish between scientific facts, beliefs, and opinions when answering scientific questions.

DESCRIPTION OF THE *APPROPRIATE ACHIEVEMENT LEVEL* FOR THE *SCIENTIFIC LITERACY SKILLS – GRADE 6*

Investigation

- Ask questions that arise from careful observation of phenomena, models or unexpected results.
- Consider appropriate variables (e.g. dependent, independent, and control) to formulate a hypothesis.
- Select appropriate tools, materials, and equipment to carry out a fair test.
- Describe the investigation procedures for a fair test or a solution to a practical problem. Identify possible sources of error.
- Record qualitative and quantitative data using measurement tools as appropriate.

Sensemaking

- Construct graphical displays (e.g., drawings, charts, maps, tables, and graphs).
- Interpolate or extrapolate from a data pattern or trend.
- Classify objects and events.
- Obtain information from sources and/or other reliable media to support results.
- Use data (evidence) to confirm or refute the hypothesis or initial problem.

Responsible and Sustainable Application

- Follow guidelines for safe use of equipment to conduct a scientific experiment.

DESCRIPTION OF THE *APPROPRIATE ACHIEVEMENT LEVEL* FOR THE *SCIENTIFIC LITERACY SKILLS – GRADE 8*

Investigation

- Ask questions that arise from careful observation of phenomena, models or unexpected results.
- Determine variables (e.g. dependent, independent, and control) to formulate a hypothesis.
- Select appropriate tools, materials, and equipment to carry out a fair test.
- Develop investigation procedures for a fair test.
- Record qualitative and quantitative data using measurement tools as appropriate.

Sensemaking

- Evaluate the accuracy of various methods for collecting data.
- Identify possible sources of error.
- Construct graphical displays (e.g. drawings, charts, maps, tables, and graphs).
- Apply concepts of probability and statistics (e.g. mean, median, mode, and variability).
- Draw a conclusion based on evidence gathered from scientific experiment or testing of a prototype.

Responsible and Sustainable Application

- Follow guidelines for safe use of equipment to conduct a scientific experiment.
- Reflect on various aspects of an issue to make decisions about possible actions.
- Differentiate between adaptation and mitigation measures as solutions to climate change.