**Provincial Assessment: Report on Student Performance**

**Numeracy, June 2018**

**"Information from this report will be used in the Ministry's Report to Schools. These comments are intended to provide teachers with information on students' strengths and weaknesses as indicated by their performance on the Provincial Assessment."**

The scoring team identified the following strengths and weaknesses for students according to each of the four types of tasks, as described in the *Design Specifications for the Numeracy Assessment*. General comments on issues that were evident across all forms of the assessment are also included.

1. **Reasoned Estimates** – These tasks require students to make or use estimates across multiple variables in order to build a logical argument for a possible solution.

| Strengths | Weaknesses |
|---|---|
| • Students were able to enter the problem and demonstrate an understanding of the context.<br>• Students used unit analysis in their solutions.<br>• Overall, student solutions were logical, organized and clear.<br>• Students used diagrams effectively to communicate work. | • Students rounded values before the final calculation which affected the accuracy of their solutions.<br>• Students did not understand how to use a rate in their calculations.<br>• Students did not communicate clearly using appropriate calculations or by providing sufficient reasoning.<br>• Students did not employ the mathematics order of operations when solving.<br>• Students misread data from graph(s). |

2. **Plan and Design** – These tasks may require students to analyze time, space, cost, and people in order to make a recommendation.

| Strengths | Weaknesses |
|---|---|
| • Students were able to enter the problem (i.e., effect a solution by manipulating given information).<br>• Students presented clear and well-organized responses.<br>• Students demonstrated the ability to convert from one unit to another, and an understanding of units.<br>• Students verified the reasonableness of their solutions.<br>• Students accurately read information in diagrams and/or charts.<br>• Students demonstrated an understanding of ratios. | • Students mislabeled units in their calculations which affected their final solutions.<br>• Students did not know how to convert a percentage into a decimal value.<br>• Students completed parts of the process but had difficulty piecing the steps together.<br>• Students used "guess and check" as a strategy rather than logic (e.g., creating an equation or expression) to solve the problem. |

**3. Fair Share** – These tasks require students to decide how to best share something fairly.

| Strengths | Weaknesses |
|---|---|
| • Students employed a wide range of strategies to solve the problem and communicated their solutions effectively.<br>• Students generally included at least one essential calculation to support their solution.<br>• In general, student solutions were well organized and compartmentalized.<br>• Students were able to apply a range of rationales to solve the problem.<br>• Students understood and could apply the concept of percentages in their solutions. | • Students sometimes omitted relevant units from their solutions.<br>• Students were unable to show that they understood the concept of ratios.<br>• Some students shared an *opinion* as opposed to an interpretation of the problem supported by given information. |

**4. Model** – These tasks require students to come up with a model or strategy, given a data set; to apply this model or strategy to a new data set; and to refine the model if necessary.

| Strengths | Weaknesses |
|---|---|
| • Students could enter the questions and were able to identify the purpose of the task.<br>• Students were able to use a wide range of approaches to solve a problem.<br>• Students were able to communicate their logic effectively using words and/or graphs.<br>• Students provided reasonable assumptions to support their solutions.<br>• Students were able to create a graph to support their solutions. | • Students referred to graphs (given information), but did not include specifics from the graph in their solution.<br>• Students did not recognize the significance of the 'broken axis' in the provided graph and created their own scales.<br>• Students were unable to identify a linear trend, or unable to create a line of best fit through an appropriate method using the given data. |

### General Comments (across all forms)

- To improve communication, students could write in brief sentences supported with relevant calculations/graphs instead of lengthy paragraphs.
- To improve the quality of their responses, students could check their solutions for reasonableness (i.e., verify that the solution makes sense in terms of the given context).
- To improve clarity of process, the values used in calculations could include units. This practice might also help students discover and correct possible errors.
- Students should do all work and calculations for selected-response questions on scrap paper rather than on the response sheets because it creates scanning issues. The response sheets are for constructed-response (student choice) questions only. (Any work done for SR questions is not marked.)
- Ensure students are familiar with the reference pages tab of the online assessment system and how to access it.