MATHEMATICS – *Data Management and Probability*		
Grade 1 collect and organize categorical primary data and display the data using concrete graphs and pictographs, without regard to the order of labels on the horizontal axis. **Grade 2** collect and organize categorical or discrete primary data and display the data, using tally charts, concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers, with labels ordered appropriately along horizontal axes, as needed. **Grade 3** collect and organize categorical or discrete primary data and display the data using charts and graphs, including vertical and horizontal bar graphs, with labels ordered appropriately along horizontal axes, as needed.	*[Name]* was able to collect and organize data to make *[specific task, such as a daily bar graph of the weather each month]*. *[Name]* was able to make a pictograph of class eye colour by asking questions, collecting the data and colouring the graph. [*Name*] is able to construct graphs and charts. *[He/She]* uses labels, and displays the information appropriately, as demonstrated *[specific task, such as when he/she made a graph of how tall the bean plants were growing during science]*.	With assistance, *[Name]* can make a graph that displays data (such as the weather). Further practice collecting data (such as favourite foods, colours etc.) and presenting it in the form of a graph would help *[Name]* improve this skill.
Grade 4 collect and organize discrete primary data and display the data using charts and graphs, including stem-and-leaf plots and double bar graphs. **Grade 5** collect and organize discrete or continuous primary data and secondary data and display the data using charts and graphs, including broken-line graphs. **Grade 6** collect and organize discrete or continuous primary data and secondary data and display the data using charts and graphs, including continuous line graphs.	*[Name]* successfully conducted a class survey on *[specific topic, such as favourite snacks]* and presented the results in a labeled graph.	*[Name]* could practice collecting and organizing data by conducting some family surveys (e.g., numbers of phone calls for each person in a week, number of minutes or hours spent doing physical activities in a week, etc.), then presenting this information in the form of a labeled chart and/or graph.
Grade 7 collect and organize categorical, discrete, or continuous primary	When *[specific task, such as surveying a class or researching the monthly average*	*[Name]* struggled to display data using *[specific tool, such as histogram, circle graph, scatter*

data and secondary data and display the data using charts and graphs, including relative frequency tables and circle graphs. **Grade 8** collect and organize categorical, discrete, or continuous primary data and secondary data and display the data using charts and graphs, including frequency tables with intervals, histograms, and scatter plots.	*temperature over the course of a year in Ontario]* and organizing the information, *[Name]* correctly read, interpreted and drew conclusions from the data collected. This data was displayed using *[specific tool, such as Numbers software or Excel software, on paper or chart paper].*	*plot].* At home, *[he/she]* should look in newspapers and magazines to find a variety of graphs and charts. *[Name]* should examine these and discuss what they represent.
Grade 1 read and describe primary data presented in concrete graphs and pictographs. **Grade 2** read and describe primary data presented in tally charts, concrete graphs, pictograohs, line plots, simple bar graphs, and other graphic organizers. **Grade 3** read, describe, and interpret primary data presented in charts and graphs, including vertical and horizontal bar graphs.	*[Name]* is able to read a graph and answer questions about the information. For example, *[specific evidence, such as "What weather has been the most common in January?"]* Name]* is able to read charts and bar graphs and answer questions about the information. For example, *[specific evidence, such as "How many more students prefer pizza to macaroni?"].*	*[Name]* continues to learn how to read graphs and answer questions about the information they represent. Further understanding of how a graph is made will help *[Name]* develop this skill.
Grade 4 read, describe, and interpret primary data and secondary data presented in charts and graphs, including stem-and-leaf plots and double bar graphs. **Grade 5** read, describe, and interpret primary data and secondary data presented in charts and graphs, including broken-line graphs. **Grade 6** read, describe, and interpret data, and explain relationships between sets of data.	*[Name]* is able to read and interpret data that is presented in the form of a graph *[or chart or table].* For example, *[he/she]* could explain the information summarized in a double bar graph in our Social Studies text.	*[Name]* is encouraged to identify and explain the information summarized in simple charts and graphs found at home (e.g., in the newspaper or on appropriate internet sites, on food packages, etc.).
Grade 7 make and evaluate convincing arguments, based on the analysis of data.	When *[specific task, such as looking at data from Census Canada], [Name]* made a convincing argument predicting *[specific evidence, such as*	At home, *[Name]* is encouraged to look in newspapers and magazines to find information based on data. *[He/She]* should examine the conclusions made from that data and try to see the

	whether Canada's population is likely to increase].	relationship between the data and the conclusion.
Grade 8 apply a variety of data management tools and strategies to make convincing arguments about data.	*[Name]* used data to make a convincing argument that *[specific evidence, such as the environment is becoming increasingly polluted].*	
Grade 1 describe the likelihood that everyday events will happen.

Grade 2 describe the probability in everyday situations and simple games.

Grade 3 predict and investigate the frequency of a specific outcome in a simple probability experiment. | *[Name]* can describe the probability in everyday situations and simple games. *[He/She]* demonstrated this during *[specific evidence, such as our coin toss game of heads and tails].* | |
| **Grade 4** predict the results of a simple probability experiment, then conduct the experiment and compare the prediction to the results.

Grade 5 represent as a fraction the probability that a specific outcome will occur in a simple probability experiment, using systematic lists and area models.

Grade 6 determine the theoretical probability of an outcome in a probability experiment, and use it to predict the frequency of the outcome. | *[Name]* successfully completed a probability experiment involving *[specific topic, such as a coin toss]*, by predicting an outcome, then trying the experiment, then comparing the results with *[his/her]* prediction. | *[Name]* could improve *[his/her]* understanding of probability by explaining the reasoning behind *[his/her]* predictions of some common events (e.g., the chances of pulling a red candy out of a package, or the number of times a coin tossed in the air will land on "tails"). |
| **Grade 7** compare experimental probabilities with the theoretical probability of an outcome involving two independent events. | By *[specific task, such as playing math games involving chance and probability, or flipping a coin or spinning a three-coloured spinner]*, *[Name]* compared what *[he/she]* thought the likelihood of something happening (theoretical | Performing more experiments or playing more games involving probability will help *[Name]* develop a better understanding of the difference between theoretical (what should happen) probability and experimental |

Grade 8 use probability models to make predictions about real-life events.	probability) should be, then looked at what the actual likelihood (experimental probability) of that same event was. By creating a model of probability (i.e., listing the possible outcomes of an event), *[Name]* made effective predictions about events in the world.	(what actually happens) probability.