MAPPING GRADE 2 SCIENCE INSTRUCTION

Concept: Science Process Skills
PWC Strand: Reasoning and Logic

CMS Unit Test: *Basic Science Skills*
SOL Reporting Category: *Scientific Investigation*

PWC Objective: 2.1.1 / Infused

The student will continue to build proficiency with basis science process skills to plan and conduct investigations. Key concepts include:

- differentiating observations from personal interpretations and concluding based on observations **(SOL 2.1a)**
- repeating observations to improve accuracy **(SOL 2.1b)**
- classifying objects by two or more attributes **(SOL 2.1c)**
- defining conditions that influence a change **(SOL 2.1d)**
- measuring length, volume, mass, and temperature using metric units **(SOL 2.1e)**
- constructing picture or bar graphs with numbered axes **(SOL 2.1f)**
- recognizing unusual or unexpected quantitative results **(SOL 2.1g)**
- constructing simple models **(SOL 2.1h)**

What Students Should Know (Critical Attributes)	**What Students Should Be Able To Do** (Essential Skills)
Essential Questions: • Why are investigations important? • How can we investigate? • What are some of the ways we can gather data in an investigation? • Why is it important to conduct an investigation more than once? **Critical Attributes:** 2.1a In order to communicate accurately, it is necessary to provide a clear description of exactly what is observed. There is a difference between what one can observe and what can be interpreted from an observation. 2.1b The more times an observation is repeated, the greater the chance of ensuring the accuracy of the observation. 2.1c It is easier to see how things are related if objects are classified according to their common characteristics or attributes. Items can be classified using two or more attributes.	• Differentiate among simple observations and personal interpretations. This requires students to comprehend what an observation is and apply the term in novel situations related to Grade 2 concepts. • Conduct simple experiments, make predictions, gather data from those experiments, repeat observations to improve accuracy, and draw conclusions. • Classify items using two or more attributes. • Analyze sets of objects, numerical data, or pictures and create basic categories to organize the data (descriptive or numerical).

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What Students Should Know (Critical Attributes)	**What Students Should Be Able To Do** (Essential Skills)
2.1d We can predict the conditions we think will make a change. For example, we can predict that if we change the amount of water we give a plant the plant will be influenced by that change in some way. We can then set up an experiment or test to see if our prediction was accurate.	• Given a simple set of circumstances, determine the condition that might influence a change.
2.1e Scientists use the metric system units of centimeters and meters to measure length; liters to measure volume, grams and kilograms to measure mass; and degrees Celsius to measure temperature. We can also use the English system to measure length in inches, feet and yards; volume in pints, quarts and gallons; mass in ounces or pounds; and temperature in degrees Fahrenheit.	• Use centimeters, meters, liters, degrees Celsius, grams, and kilograms in measurement. • Use inches, feet, yards, pints, quarts, gallons, degrees Fahrenheit, ounces, and pounds in measurement.
2.1f We can record our measurements and observations on a picture or bar graph with numbered axes, titles and legends.	• Construct picture and bar graphs with numbered axes depicting the distribution of data.
2.1g Recognizing unusual or unexpected quantitative results of the investigation. It is important to always make a conclusion based on what was actually observed (the data) and not what we think we should have observed or what other students observed.	• Judge, which, if any, collected data in a small set, appear to be unexpected or unusual.
2.1h Models and graphs make it easier to see what happened and if anything happened that we didn't expect to happen.	• Construct and interpret simple models (for example, water cycle).