MAPPING GRADE 1 SCIENCE INSTRUCTION

Concept: Science Process Skills **PWC Strand:** Reasoning and Logic

PWC Objective: 1.1.1 / Infused

The student will begin to conduct simple investigations using basic science process skills. Key concepts include:

- observing differences in physical properties using the senses and simple tools **(SOL 1.1a-b)**
- classifying and grouping objects or events according to attributes or properties **(SOL 1.1c)**
- communicating observations and data orally with simple graphs, pictures, written statements, and numbers **(SOL 1.1d)**
- measuring length, height, weight, size, and volume using standard and nonstandard units **(SOL 1.1e)**
- predicting from observations and answering questions by conducting simple experiments **(SOL 1.1f)**
- inferring and concluding about familiar objects and events **(SOL 1.1g)**

What Students Should Know (Critical Attributes)	**What Students Should Be Able To Do** (Essential Skills)
Essential Questions: • How can we learn about objects and events around us? • How do we organize events and objects in our world? • How can we organize the information (the data) we have gathered and share it with others? • What does studying our data allow us to do? • What simple tools do we use to help us observe the world?	
Critical Attributes:	
1.1a-b Our senses and simple instruments including magnifying glasses, rulers and thermometers can help us observe the world.	• Use senses and simple instruments (magnifying glass) to enhance their observations of physical properties.
1.1c For us to understand the many objects and events in the world around us, it is necessary to impose some kind of order by observing their attributes and grouping them based on similarities and differences. Some of the attributes we observe can be measured, such as length, height, weight, size and volume.	• Classify and arrange objects or events according to at least two attributes or properties so that similarities and differences become apparent.
1.1d We can organize and communicate the information awe have gathered from our observations (our data) through picture graphs, pictures, written statements, and numbers. Graphs are a powerful way to display data. Describing things as accurately as possible is important because it enables people to compare observations.	• Communicate observations made and data collected orally and with simple graphs, pictures, written statements, and numbers.

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What Students Should Know (Critical Attributes)	**What Students Should Be Able To Do** (Essential Skills)
1.1e Standard measures are important for describing an object because standard measures are recognized by everyone. Many nonstandard measures such as a finger or hand length vary considerably.	• Measure length, mass, and volume using standard and nonstandard units and appropriate instruments. By the third grade students will be expected to have basic facility with metric measures including centimeters, grams, and milliliters.
1.1f Simple experimentation allows us to collect data from which we can draw conclusions. A simple experiment is one that changes only one thing at a time and provides changes that are easy to observe.	• Answer questions by planning and conducting simple experiments/investigations using basic tools and techniques. A simple experiment is one that changes only one thing at a time (tests only one variable), gives quick results, and provides easily observed changes.
1.1f We can make predictions based on the patterns and relationships we infer. A prediction is a forecast about what may occur in some future situation. It is based on information and evidence. A prediction is different from a guess.	• Predict outcomes based on actual observations and evidence rather than random guesses.
1.1g An inference is a conclusion based on evidence about events that have already occurred.	• Use familiar events and objects to make inferences and draw conclusions.
	Teacher note: A critical component of successful inquiry in science includes deriving meaningful questions and issues from content-related concepts. It is necessary to establish an adequate knowledge base to support investigation and develop explanations of science phenomena. Inquiry in Grade 1 science not only allows students to strengthen their facility with basic science skills, but it also allows them to reflect on the science concepts they are learning. *For this reason, it is important that teachers keep the critical attributes of investigation in mind as they plan instruction to meet objectives in the Life Science, Environmental Science, Physical Science, and Earth and Space Science Strands at this level.*