

MAPPING KINDERGARTEN SCIENCE INSTRUCTION

Concept: Science Process Skills

PWC Strand: Reasoning and Logic

PWC Objective: K.1.1 / Infused

The student will become familiar with basic science process skills that allow for exploration of the natural world. Key concepts include:

- making direct observations to identify and describe basic properties of objects **(SOL K.1a)**
- observing objects from multiple positions to achieve different perspectives **(SOL K.1b)**
- describing objects pictorially and verbally **(SOL K.1c)**
- sequencing objects **(SOL K.1d)**
- grouping objects **(SOL K.1e)**
- measuring with nonstandard units **(SOL K.1f)**
- developing questions from observations **(SOL K.1g)**
- constructing picture and bar graphs with 10 or fewer units **(SOL K.1h)**
- predicting members of a sequence **(SOL K.1i)**
- recognizing unusual or unexpected results **(SOL K.1j)**

What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How can we learn about the world around us? • How can we explain what we have learned about the world? • How can we communicate to others what we have learned about objects in the world around us? • What can we do to explore further what we have learned about the world? <p><u>Critical Attributes:</u></p> <p>K.1a We can learn about the world by studying and describing objects and events that happen around us. The facts we learn are called observations. These include: color, shape (circle, triangle, square), size (big, little, large, small), texture (rough, smooth, hard, soft), weight (heavy, light). These observations can help us compare, contrast, and note similarities and differences.</p>	<ul style="list-style-type: none"> • Observe objects and describe their basic properties.

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What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p>K.1b An object can appear very different depending on how it is oriented. To describe an object fully and accurately, it should be observed from the top, bottom, front, and back to achieve different perspectives.</p> <p>K.1c We can communicate what we observe to others by making pictures or through discussions.</p> <p>K.1d Putting objects in a sequence or order can help us understand how things are related. A sequence can show how things can change a little at a time.</p> <p>K.1e We can learn many things about objects by arranging them in different orders and placing them in groups based on how they are alike and how they are different.</p> <p>K.1f We can learn about objects by measuring how long they are or how tall they are compared to other things. A non-standard unit of measure, such as the length of a paper clip or the weight of a penny can be used to describe and communicate the dimensions of an object. For a non-standard unit to be most useful, it should be consistent and easily applied.</p> <p>K.1g We can think of new questions to explore from what we have seen and learned about objects and events that happen around us.</p> <p>K.1h Picture graphs are useful ways to display and report information.</p> <p>K.1i We can use our observations of sequenced objects to make predictions and complete patterns.</p> <p>K.1j It is important to observe the results of an investigation carefully. Results that we find to be unusual or unexpected may be of interest for further study.</p>	<ul style="list-style-type: none">• Observe an object or objects from multiple positions to achieve different perspectives. In order to accomplish this, the student should look at the object from the top, bottom, front, and back.• Describe objects both pictorially and verbally.• Arrange a set of objects in sequence according to size.• Separate a set of objects into two groups based on a single physical attribute including size, color, texture, and weight.• Measure common objects with non-standard units including hands, pennies, and paper clips.• Develop a question from one or more observations.• Construct picture graphs using 10 or fewer units.• Predict an unseen member in a sequence of objects to complete a pattern.• Identify unusual or unexpected results in an activity.

MAPPING KINDERGARTEN SCIENCE INSTRUCTION

Concept: Using Senses For Observation

PWC Strand: Reasoning and Logic

PWC Objective: K.1.2

The student will investigate and understand that humans have senses that allow them to learn about their surroundings. Key concepts include:

- the five basic human senses **(SOL K.2a)**
- sensory organs associated with each of the five basic human senses **(SOL K.2b)**
- sensory descriptors **(SOL K.2c)**

What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What are the five basic human senses and what do they help us do? • What special body parts help us sense things in our surroundings? • What kinds of words do we use to describe what we sense from our world? <p><u>Critical Attributes:</u></p> <p>K.2a We can learn about our surroundings and make careful observations to find out about objects, events, and living things using our senses. Humans have five basic senses that help us learn about the world: <u>taste</u>, <u>touch</u>, <u>smell</u>, <u>hearing</u>, and <u>sight</u>. We use these senses to seek, find, take in, react, and respond to information about objects and events around us.</p> <p>K.2b We have special sensing organs that help us learn about our surroundings. They include our <u>eyes</u>, <u>ears</u>, <u>nose</u>, <u>tongue</u>, and <u>skin</u>.</p> <p>K.2c We use words to describe and communicate what we learn and match these sensory descriptors with senses such as:</p> <ul style="list-style-type: none"> ○ taste: sweet, sour, bitter, salty ○ touch: rough, smooth, hard, soft, cold, warm, hot ○ sound: loud, soft, high, low ○ sight: bright, dull, colorful, black and white 	<ul style="list-style-type: none"> • Identify and describe the five senses (taste, touch, smell, hearing, sight). • Match each sensing organ with its associated sense (eyes/sight; tongue/taste; nose/smell; ears/hearing; skin/touch). • Match sensory descriptors with the senses.