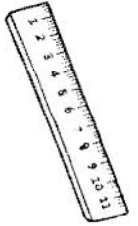
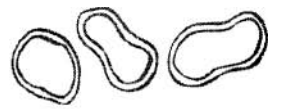
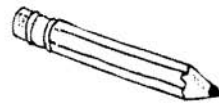
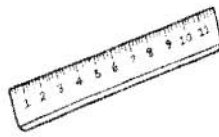
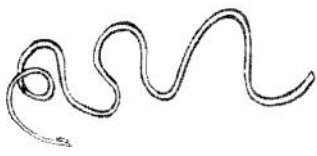


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Introduction

This book is a valuable resource for kindergarten teachers who are implementing a standards-based curriculum. The focus topics in this book, measurement and graphing, are developed through scripted lessons, lists of ideas, and ready-to-use activity sheets. The mathematics content reflects the National Council for Teachers of Mathematics (NCTM) document, *Principles and Standards for School Mathematics*. Exemplary curricula from various state documents were also researched to ensure that key concepts were included and presented appropriately for kindergarten students. The Standards Correlation Chart on page 6 identifies these standards and lists page numbers of lessons that develop each concept. Standards for graphing are highlighted (introduced) on page 62.

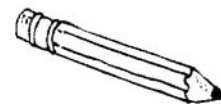
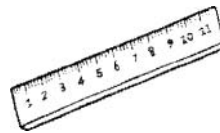
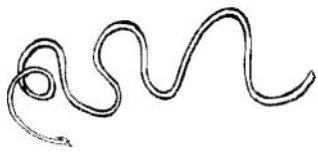
Standards for Measurement

Ask a five-year-old what it means to measure. He or she will likely explain that it's "counting to see how big something is." Think about what measurement really is and, further, how it can be taught meaningfully rather than as a rote, mimicked procedure. As a kindergarten teacher, you know this is more of a challenge than most would imagine!

Measurement is, according to the NCTM Standards, "... one of the most widely used applications of mathematics" because it "bridges two main areas of school mathematics—geometry and number." Measuring is a way of quantifying things in the world by assigning numerical values to their length, volume, weight, area, and duration (time). The activities in this book will help your students understand that this means describing an object by naming how many cubes it can hold, how many blocks tall it is, or how much string is needed to "go around" it. In students' eyes, measurement becomes a way to use numbers to describe things in their world.

Research suggests that early measurement experiences should involve direct comparisons between two, then more than two, objects. The measurement lessons in this book are intended to expose kindergarteners to a variety of concepts. The lessons provide direction as to how a topic is best developed when students are ready to move forward. Do not expect students to completely grasp all of the ideas at their first introduction, but note where students are in the process of understanding what measurement is all about.





Color-Strip Staircases

Overview

Students compare paper strips to identify one that matches in length and those that are shorter and longer. They order the strips by height.

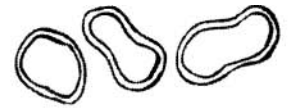
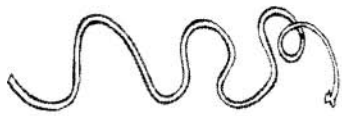
This lesson begins with a classroom discussion and demonstration. It can be followed with an independent or center activity.

Materials: paper strips of varied lengths and colors, two of which are equal in length; Color-Strip Staircase activity sheet (p. 14); glue stick



Lesson

1. Display unordered colored paper strips that are different lengths (for example, 3, 5, 6, 8, 4, and 7 inches). Say to students **I** need your help making a color-strip staircase. Ask them what they think this means. They will likely be able to describe exactly what the activity is all about!
2. Show students a strip of white paper that is the same length as another strip. Say **My** staircase is special because it has what **I** call a resting step. Two steps are even, so **I** can take a step without going up or down. This white strip is my resting step. **I** wonder which colored strip is the same, or equal in length, as this one. Students may whisper their predictions to a classmate.
3. Have a student verify his or her prediction by matching paper strips.
4. Say **I** wonder how the rest of these strips compare. Have students compare the remaining strips. If students don't suggest doing so, say **How** can **I** organize these strips? They will suggest making a staircase arrangement with the four additional strips in ascending or descending order—either way works.
5. Show students an additional strip that is "in between" two of the already-ordered strips; for example, 7 1/2 inches in length. Say **Oops!** **I** forgot this one! Decide as a group where it belongs in the sequence.
6. When all strips are ordered, say **Thank you!** Now **I** can glue these strips in place to make my staircase. Glue them on white paper.



7. Tell students that they will be making their own staircase. Show students the materials they will use and give directions as described below.

Independent Practice/Center Activity

- Cut strips to the following lengths. Add other colors/lengths as needed. Students must pick one of each color.

Blue—2"

Yellow—6"

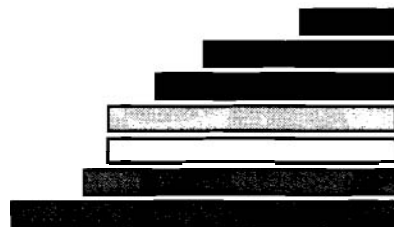
Red—4"

Orange—8"

Green—5"

Pink—6 1/2"

- Make a collection of white strips that are the different lengths listed above. Students must pick one "resting step" from the collection of white strips.
- Each student lays his or her collection of strips on the activity sheet (page 14) to make a staircase, Remind students that the white step is the same as one of the others and should be placed alongside it.
- Students glue their strips in place. If time allows, have students describe their staircase and record the words they use on their paper (for example, the blue strip is longest, the yellow is the same as the white).



Check for Understanding

As students compare and order paper strips, observe and note:
Do they—

- * Line up the ends of strips (make them "even") so that their lengths are accurately compared?
- Correctly state relationships among strips?
- Match equal strips and sequence the others correctly?
- Describe their staircase using comparative language?

