

# Measuring Changes

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<b>Strand</b>	Earth Patterns, Cycles, and Changes
<b>Topic</b>	Investigating measurement of changes
<b>Primary SOL</b>	K.10 The student will investigate and understand that change occurs over time and rates may be fast or slow. Key concepts include b) changes can be observed and measured.
<b>Related SOL</b>	K.10 The student will investigate and understand that change occurs over time and rates may be fast or slow. Key concepts include a) natural and human-made things may change over time. K.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which a) basic characteristics or properties of objects are identified by direct observation; e) nonstandard units are used to measure the length, mass, and volume of common objects.

## Background Information

Change occurs over time. Change can be fast or slow depending upon the object and the environmental conditions. The growth of a bean plant is slow compared to the rapid destruction of a forest caused by a fire. The time for a forest to recover can take 20 years or longer, yet the growth of the bean plant is fast compared to the forest's recovery.

This is an ongoing lesson that can be started at the beginning of the year and revisited throughout the school year.

## Materials

- Beginning-of-the-year *All about Me* books
- End-of-year *All about Me* books
- Tape measure
- Old magazines

## Vocabulary

*change, grow, measure, slow, fast*

## Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

### Introduction

1. Talk about ways that people change. If possible, bring in a picture of yourself as a baby, child, and adult. Ask students whether they think they will change during the school year. Ask whether the changes will be fast or slow.

### Procedure

1. At the beginning of the year, make an *All about Me* book with students, as follows:

- Page 1: Here is how I write my name: \_\_\_\_\_
  - Page 2: I am \_\_\_\_ years old. My birthday is \_\_\_\_\_.
  - Page 3: I am \_\_\_\_ inches tall. At the end of the year, I think I will be \_\_\_\_\_ inches tall. (You will have to measure students with a measuring tape. You may want to start a class growth chart.)
  - Page 4: Here is what I look like now. (Either have students draw a picture, or take a photograph for them to put on this page.)
  - Page 5: This is what I will look like at the end of the year. (Draw a picture here.)
2. Students may share their books with others in the class, telling how they think they will change during this school year. Listen, and note what type of changes students think will happen during the school year. Discuss: “What if we measured you again tomorrow? Would we get different answers? Why, or why not?”
  3. At the end of the year, have students complete a second *All about Me* book, as follows:
    - Page 1: Here is how I write my name: \_\_\_\_\_
    - Page 2: I am \_\_\_\_ years old. My birthday is \_\_\_\_\_.
    - Page 3: Now I am \_\_\_\_ inches tall. (Measure students with a tape measure.)
    - Page 4: Here is what I look like now. (Either have students draw a picture, or take a photograph for this page.)
    - Page 5: Wow, have I grown! Now I can .....
    - Discuss the changes that have happened over the year.

### **Assessment**

- Cut out pictures of people from magazines. Categorize them as babies, young adults, and older people.

### **Extensions and Connections (for all students)**

- Send home a note asking parents to complete a baby version of the *All about Me* book. Have students make comparisons between what they looked like then, including their size, and what they look like now.
- Ask parents to send in a baby picture of their child. Have students try to guess to whom each baby picture belongs. Discuss changes.
- Plant a seed. As a class, measure and record its growth.

### **Strategies for Differentiation**

- Create an electronic version of the *All about Me* book in a talking word processing program that also creates an overlay for an alternative keyboard.
- Trace, or use paint to create copies of students’ hands or feet so that students can compare growth of their hands and/or feet throughout the school year. Sort from large to small.
- Have pairs of students sort pictures of people at various ages (babies, students, young adults, senior citizens).
- Measure the heights of students, using adding machine tape throughout the year. Compare the strips throughout the year to see the difference in growth.
- Create a three-column graphic organizer with each column a different color and labeled with words and supporting pictures (students, young adults, older people).

- Have students create a picture book of people, animals, and plants at different growth stages. Label the pictures.