



## How I Change

### Lesson Synopsis:

Students will be observing and measuring ways they have changed since birth, and will predict how they will continue to change. The students will be making a time capsule so they can see at the end of the year how they have changed.

### TEKS:

**1.5** *The student knows that organisms, objects, and events have properties and patterns.*

**1.5A** Sort ~~objects and~~ events based on properties and patterns.

**1.5B** Identify, predict, and create patterns including those seen in charts, graphs, and numbers.

**1.6** *The student knows that systems have parts and are composed of organisms and objects.*

**1.6A** Sort organisms ~~and objects~~ according to their parts and characteristics.

**1.7** *The student knows that many types of changes occur.*

**1.7A** Observe, measure, and record changes in size, mass, color, ~~position, quantity, sound, and movement.~~

### Process TEKS:

**1.2** *The student develops abilities necessary to do scientific inquiry in the field and the classroom.*

**1.2 B** Plan and conduct simple descriptive investigations.

**1.2 C** Gather information using simple equipment and tools to extend the senses.

**1.2 E** Communicate explanations about investigations.

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## GETTING READY FOR INSTRUCTION

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### Performance Indicator(s):

- The student will choose, from a set of objects, the longest object and the objects that have the most mass using nonstandard measurement tools. (1.7A)  
**ELPS:** 1E, 2E, 2I, 3D, 3H, 4E, 5B, 5G

### Key Understandings and Guiding Questions:

- Objects can be measured using tools such as rulers and balances.
  - Can changes be measured?
- Objects can be measured and compared according to their length and mass.
  - Does using a standard system to measure give us accurate data?

### Vocabulary of Instruction:

- unit (of measure)
- change
- size
- shape
- length
- mass
- measure
- observe
- compare

### Materials:

- book about a character who grows (suggested titles in bibliography)
- class science notebook [spiral chart paper]
- adding machine tape to measure birth length and current height
- letter to parents/guardians requesting student's birth length
- metric and customary rulers (for demonstration only)
- scissors (1 per pair)
- cubes of the same size and shape
- two objects of different length for demonstration (such as, 2 stuffed animals or 2 shoes)

- 1 large box to store time capsule bags
- gallon sized baggies (1 per student)
- camera (digital or other)

*Appropriate materials may be substituted as needed to incorporate district resources and availability.*

### Resources:

- Foldbook: **All About Me**
- <http://earlychildgrowth.com/development/articles/milestones.html>

### Advance Preparation:

1. About a week before this lesson, send a letter to parents/guardians requesting student's birth length.
2. Find a book about a character who grows (suggested titles in bibliography)
3. Cut adding machine tape to measure birth length, label with student's name.
4. Make a copies of the following handouts:
  - **Look at Me Now!** (1 per student)
  - **How Much Have I Grown?** (1 per student)
  - **Measuring and Describing Data** (1 per student)
5. Collect two objects of different length for demonstration (such as, 2 stuffed animals or 2 shoes)
6. Make a copy of booklet: **All About Me** (1 per student)

### Background Information:

Students have already gone through many changes before they have reached first grade; physical development, cognitive development, social & emotional development and language development. For a comprehensive comparison of these changes, please see <http://earlychildgrowth.com/development/articles/milestones.shtml>

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## GETTING READY FOR INSTRUCTION SUPPLEMENTAL PLANNING DOCUMENT

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Instructors are encouraged to supplement, and substitute resources, materials, and activities to differentiate instruction to address the needs of learners. The Exemplar Lessons are one approach to teaching and reaching the Performance Indicators and Specificity in the Instructional Focus Document for this unit. A Microsoft Word template for this planning document is located at [www.cscope.us/sup\\_plan\\_temp.doc](http://www.cscope.us/sup_plan_temp.doc). If a supplement is created electronically, users are encouraged to upload the document to their Lesson Plans as a Lesson Plan Resource in your district Curriculum Developer site for future reference.

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## INSTRUCTIONAL PROCEDURES

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### Instructional Procedures

#### ENGAGE:

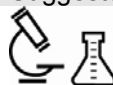
##### Observing Change

1. Ask students to think about the changes they have observed so far this year, such as change in weather, changes in the seasons.
2. Brainstorm ways they think they have changed since they were born. Chart student responses.
3. Show the students the book you have chosen to read. (It should be a story about a character who changes, such as *An Egg is An Egg*, *Clifford the Big Red Dog*, *You'll Soon Grow into Them*, *Titch*, or *When I was Little: A Four-Year Old's Memoir of Her Youth*)
4. Ask students to predict what they think the story could be about. (*Allow students to respond.*)
5. Read aloud to students the story concerning a growing (height, for

### Notes for Teacher

**NOTE:** 1 Day = 50 minutes

Suggested time: Day 1



#### MATERIALS:

- Story book of a character who changes, such as *An Egg is An Egg*, *Clifford the Big Red Dog*, *You'll Soon Grow into Them*, *Titch*, or *When I was Little: A Four-Year Old's Memoir of Her Youth*
- Handout: **Look at Me Now!** (1 per student)

## Instructional Procedures

example) character. [sample titles are listed in bibliography]

6. Facilitate discussion of the changes that occurred to the character during the story. Have any changes like this happened to you? (Add to the chart of ideas they already came up with.)
7. Ask to students to consider all the ways they have changed since birth. Encourage them to think about their own "properties" of size and shape.
8. Distribute the handout: **Look at Me Now!** for the students to complete.

## EXPLORE/ EXPLAIN

1. Review changes that have happened to students as they have grown since birth. Yesterday we observed these changes and wrote about them, just like a scientist would do. Scientists also need to measure things to see how much they have changed.

Ask:

- **How might we measure how tall we are?**
- **Can you think of some other ways?**

2. Explain that when we measure something, we use units that are all the same size. Show students your two pre-selected objects. Using a student volunteer, begin to measure the student's height using both objects (1 frog, 1 bear, 1 frog, 1 bear) [The students should begin to see that this way of measuring does not make sense]

Ask:

- **Is this a good way to measure something? Why not?**
- **What should I do instead?** *Measure the student with only one of the objects.*

3. Explain that scientists around the world have developed a system for measuring length using the *metric system* (show metric ruler) In the United States, we use the customary system (show ruler using inches), but the metric system (The SI system) is the sole measurement language in science and for other measurement in most of the world. These tools have sections that are all the same size so scientists can keep their measurements organized. While we are measuring length, we will use connecting cubes that are all the same length.

4. Have the student's birth length (a letter should have gone home about a week prior to this activity)

Ask:

- **Why was it important to record this information when you were born?**
- **Do you think your length (height) has changed since you were born?**
- **Why has it changed?**

5. Distribute a copy of the handout: **How Much Have I Grown?** to each student. In addition, distribute the pre-cut strips of adding machine tape that represents their birth length.
6. Model how to use the set of cubes to record a length for the piece of tape. Students record birth cube length on the handout.
7. Model for students how they will use their new strip of tape to record their current height. Students will work in partners; one partner will lay flat and straight on the floor while the other cuts the tape to match their height.

## Notes for Teacher

Suggested time: Day 2 and 3



### MATERIALS

- 2 objects of different length for demonstration (such as 2 stuffed animals or 2 shoes)
- metric ruler
- customary ruler
- student data from birth record: birth length (collected a week in advance)
- pre-made strips of adding machine tape for EACH student showing their birth length
- a set of identical cubes
- adding machine tape strips (a meter and a half for each student)
- scissors
- Handout: **How Much Have I Grown?** (1 per student)

Have an older student, a parent or PTA volunteer help with making the paper strips.

If a student was not able to turn in their birth length, take an average length from the class and make them a strip to use during the activity.



### Safety note:

Monitor the student's use of the scissors so close to other students. You may have them fold the tape to cut after the student is standing or have the teacher do the cutting.

## Instructional Procedures

- Students use the set of cubes to measure the length of tape representing their current height. Students record current height on handout. Students should also write their name on the tape strips.
- Students answer questions on handout: **How Much Have I Grown?**  
Ask:
  - When were you shortest?** (*I was shortest at birth.*)
  - When were you longest?** (*I am longest today.*)Allow students to predict how many cubes long they might be when they are 10 years old.
- Save these papers, the measuring tapes, and the handouts for the next activity.

## ELABORATE

- Tell students that they are going to make a class time capsule to see how they grow and change during the school year.
- Brainstorm with students the kinds of things to include in the time capsule. Students may want to include things such as pictures of themselves, stories they've written, class work they have completed, and a daily class schedule.
- Distribute a gallon-sized baggie to each student. (The teacher may want to write each student's name on the bag before distributing.)
- Distribute copies of **All About Me**, read it aloud, and have students complete the booklet.
- Explain that they will complete another booklet at the end of the year.
- Establish and give students a timeframe to complete activity.
- Monitor student understanding by walking around the room and answering and asking questions.
- Photograph the students with a digital (or disposable) camera.
- Put the booklets, photos, and sample class work in the student's bags.
- Gather students for a discussion.  
Ask:
  - What information did you record about yourself that might change?** (*Height, weight, number of pets, "favorites", # of teeth lost.*)
  - What information that you recorded about yourself probably won't change?** (*Name, birthday, eye color, hair color*)
  - What are some other things that might change for you during the year?** (*Answers will vary.*)
- Make sure they have sealed their baggie for the time capsule.
- Collect all the bags.
- Put in a box and seal. Decide on a date when the box will be reopened at the end of the year. Circle the date on the calendar.

## Notes for Teacher

Suggested time: Day 3 and 4



### MATERIALS:

- Foldbook: **All About Me** (1 per student)
- gallon-sized baggie
- camera (digital or other)

Allow a few days for students to collect or create other things they want to include in the time capsule. Then, with students, seal it and choose a date near the end of the school year to open it. (See Evaluation section of lesson) If there are new students added to your class during the year, have them complete a booklet.

(You can extend math connection throughout the year by asking how many more days until we can open the time capsule?)

At year-end: When you open the time capsule, have students complete another **All About Me** booklet. Have a class discussion to see how they have changed as individuals and as a group. If students drew pictures of themselves at the start of the year, they may want to draw a new picture of themselves. If you included photos of the students, take new photos for comparison. Whatever information students initially included, they should revisit it to see what changes may have occurred.

## Instructional Procedures

14. Count (measure) how many days until the box is opened again.

## EVALUATE

1. Students have learned about observing properties, they know that things change and that change can be measured.
2. Using the cubes and the balances, students will have the opportunity to measure and record things that might change (for example: the length of their hand, length of their foot, a plant that is growing outside, and things that don't change, such as an object in the classroom).
3. Distribute a copy of the handout: **Measuring and Describing Data** to each student. Have them complete and share their findings with the class.

## Notes for Teacher

Suggested time: Day 5



### MATERIALS:

- Handout: **Measuring and Describing Data** (1 per student)
- markers or map pencils

## Look at Me Now!

**Draw a picture of yourself as a baby. Write two sentences describing yourself as a baby.**

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**Draw a picture of yourself now. Write two sentences describing yourself now.**

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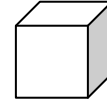
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## How Much Have I Grown?

Measure your birth length paper strip using cubes.

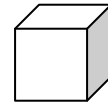


How many cubes long were you when you were born?

**birth = \_\_\_\_\_ cubes**

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Measure your current height paper strip using cubes.



How many cubes long are you today?

**today = \_\_\_\_\_ cubes**

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When were you shorter?

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\_\_\_\_\_



When were you longer?

\_\_\_\_\_  
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\_\_\_\_\_

Predict: How many cubes long will you be when you are 10 years old?

\_\_\_\_\_  
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\_\_\_\_\_

# Measuring and Describing Data

| Name of Object | Picture of Object | How many cubes long?<br> | Mass of object?<br> | Other Observations |
|----------------|-------------------|---|--|--------------------|
| 1.             |                   |   |  |                    |
| 2.             |                   |   |  |                    |
| 3.             |                   |   |  |                    |
| 4.             |                   |   |  |                    |



## Bibliography

Bridwell, N. (1995). *Clifford the big red dog*. New York: Cartwheel.

Curtis, J. (1999). *When I was little: A four-year-old's memoir of her youth*. New York: HarperFestival.

Hutchins, P. (1992), *You'll soon grow into them, titch*. New York: HarperTrophy.

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