

	<b>Grade:</b> K	<b>Unit Length:</b> 3 -6 days
<p><b>GCE-LTER Schoolyard Integration &amp; Unit Focus:</b> Use plant monitoring/identifying techniques from Dr. Schalles' cypress swamp study (summer 2018) to compare and contrast trees in the schoolyard</p>	<p><b>Science GSE:</b> SKL1 – Obtain, evaluate, and communicate information about how organisms (alive and not alive) and non-living objects are grouped. SKL2 – Compare similarities and differences in groups of organisms.</p> <p><b>Math GSE</b> MGSEK.MD.1 Describe several measurable attributes of objects, such as length or weight. MGSEK.MD.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference. MGSEK.MD.3 Classify objects into given categories; count the numbers in each category and sort the categories by count.</p> <p><b>Vocab:</b> living, organism, circumference, trunk, canopy, subcanopy, inches, measuring tape, leaf</p>	
<p><b>Materials:</b> Warm Up &amp; Lesson PPT measuring tapes, plastic links, wood logs (cylinder shape, various sizes), pencils, recording sheets, clipboards, leaf identification sheet (teacher created), binoculars and/or iPads</p>	<p><b>Essential Question(s):</b> What is an organism? How can we compare and contrast similar organisms (such as trees)? What are the characteristics of a living organism? How can objects be measured? How can we identify the types of trees around us?</p>	<p><b>Warm Ups:</b> Living vs. Nonliving PPT slide Measuring logs Garden Spot the Difference</p>
<p><b>Procedures: (Teacher should identify and label 10 trees on schoolyard to have students observe and measure prior to beginning unit. Depending on readiness level, students may work independently or with a partner.)</b></p> <p>Day 1 – Canopy or Subcanopy</p> <p><b>Warm Up:</b> Display Living vs. Nonliving PPT slide – students take turns circling organisms and drawing an “X” over nonliving things.</p> <p><b>Mini-Lesson:</b> Teacher: We’ve learned that scientist like to study the world around them. Scientist can classify all things into 2 groups – living things, or organisms, and nonliving things. Let’s review the 5 characteristics that make something a living thing, organism. (Use lesson slide to perform “Living things” chant)</p>		

I noticed something interesting about all the organisms we circled in our warm-up today. Did anyone else notice anything special? What is the same about all the organisms we circled? How could we group, or classify, these organisms? Teacher should guide students in a discussion that identifies all organisms from the warm up as trees. Discuss what is the same about all the trees (possible student responses - they have leaves, tree trunks, grow, stand up tall, etc.)

Teacher: Today we are going to observe some trees in our schoolyard and try to classify them by their height. Remember we learned that height describes how tall something is. When we look at trees we are going to pay special attention to the highest part of the tree with leaves. Trees whose leaves stretch high can be classified as canopy trees. Trees whose leaves don't reach as high can be classified as subcanopy trees. (show students canopy vs. subcanopy ppt slide)

Demonstrate how to record answer in first column of recording sheet.

### **Independent Practice**

Students observe designated trees on schoolyard and classify as being a part of the canopy or subcanopy by recording on their sheet.

### **Wrap up:**

As a class discuss results of our observations of trees belonging to the canopy and subcanopy. May continue to next day if additional time is needed.

## Day 2 – Finding the Circumference of Trees

### **Warm Up:**

Using various sized pieces of logs, have students think of ways to measure the wood (height, weight, how big around (circumference). Offer students various tools/manipulatives (measuring tape, counting links) to measure. As a class, discuss the various methods students used to measure the logs. Introduce students to the word "circumference" (how big around).

### **Mini-Lesson:**

Teacher: Yesterday we learned how to identify trees that belong to the canopy and subcanopy layers of an area. Let's use hand motions to help remind us of the difference between the canopy and subcanopy. When I say "canopy" or "subcanopy" I want you to either move your hands up high above your head or at chest level.

Teacher: During our warm up today we found lots of different ways to measure our logs. One way we measured was to find how big around the log was using our tape measures and counting links. The scientific word for how big around something is circumference. Today we are going to go back outside to the trees we observed

yesterday and we are going to find the circumference of each in inches. (As needed, review with students how to use the tape measure correctly to find circumference. Students may practice with logs as needed.)

Demonstrate how to record answer in middle column of recording sheet.

### **Independent Practice**

Students observe designated trees on schoolyard and use measuring tapes to find the circumference of each tree. Students should record the circumference in the correct column on their recording sheet.

### **Wrap up:**

As a class discuss results of our measurements for each tree. May continue to the next day if additional time is needed.

## Day 3 – Identifying trees

### **Warm Up:**

Display Spot the Difference PPT slide – students take turns circling the differences.

### **Mini-Lesson:**

Teacher: Yesterday we learned a new scientific word to describe how big around the trees that we are observing are. Does anyone remember our scientific word? (circumference) What kind of motion could we use to show “circumference?” (guide students into make a circle with both hands out in front of them)

Teacher: We’ve also learned how to identify a tree as belonging to the canopy or the subcanopy. Remind me with your hand motions the difference between canopy and subcanopy (students should shake hands high above head for canopy and at chest level for subcanopy).

Teacher: There’s one more thing we get to investigate about our trees and in order to do this we’ll need to make close observations of each tree’s leaves. We are going to use the leaves of trees to help us figure out which type of tree each of our schoolyard trees is. Show students sample identification sheet (teacher may need to edit to include fewer options or other tree types that better correlate to trees present in the schoolyard).

As a whole group, practice identifying sample leaves to ensure students understand how to compare leaves to identification chart. Demonstrate how to record answer in last column of recording sheet.

\*Possible tool integration – introduce students to binoculars and have them use while outside to better observe trees’ leaves

\*Possible technology integration – have students use iPads to take pictures of leaves from each tree and then use identification sheets to determine the type of tree.

**Independent Practice**

Students observe designated trees on schoolyard and use leaf identification chart to correctly identify each tree type.

**Wrap up:**

As a class discuss results of our observations and identify tree types. May continue to next day if additional time is needed.

**Extension:** Students track the growth of each tree by taking measurements at the beginning and end of the school year. Additionally, students may track tree growth from year to year.

Students select 1 tree to “adopt” and make/record observations of the tree’s changes throughout the school year (at least once per season).

Simulating effects of saltwater inundation (sea level rise) – Randomly select 5 trees to treat with saltwater on a weekly basis and track the growth/health of trees receiving fresh water vs. (occasional) saltwater.

Tree #	Canopy or Subcanopy	Diameter of Tree (inches)	Type of Tree
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

## Leaf Identification Chart



birch



dogwood



elm



hickory



linden



maple



oak



sweet gum

\*May need to be edited to include fewer choices if K students are struggling.

Submitted by Alisha Buffington

Chicopee Woods Elementary

Gainesville, GA