

# Lesson plans

## Earthwatch Resilient Trees Project

Objective: introduction of students to field science and Citizen science through careful measurement of botanical data on trees

### **DAY 1: introduction to project**

*Equipment: Powerpoint, projector, speakers*

Show slides shows. Assign some for homework. Questions to answer about what they don't watch in class. *(Optional). Link to slideshows in Google classroom.*

### **DAY 2: training on the equipment**

(Direct instruction/demonstration/student field work within school bounds)

*Equipment: Document camera, GPS units for each team*

Introduction to GPS

Off/on switch ( )  
Moving around with joystick

Backlighting/depressing joystick button for light (reset for short time; have practice)

Quick review of latitude and longitude.

Guided practice: determining positions

Marking waypoints (walk through instructions)

Determining area

Teacher: walks around room with device. Demonstrates finding area, converting between meters and

Distribute to each team:

1. GPS
2. 100' tape measure
3. tree-diameter tape measures
4. data sheet for recording measurements

Practice areas:

Pre-selected areas for GPS

Measure specified areas (basketball court, assembly tent) by hand with 100' measuring tapes

Measure at least 4 trees at 48" (each student should measure one)

***Debrief (do on separate day if not a block period):***

Students enter data gathered on poster paper

Gallery walk to compare measurements

QuickWrite for each team re discrepancies, possible reasons and explanations

**Day 3: first visit to park (practice)**

Equipment: Earthwatch kits for each team, separate handout for assigned trees to measure for resilient trees initiative (next class day)

Review measurements from campus, QuickWrites. Discussion of discrepancies and likely causes

Assign students trees of comparable size and complexity of those to be measured

Demonstrate 10-meter measurement around trees, measuring canopy

Circulate and correct measurements while students measure

Review data gathering techniques

At site, demonstrate 10-meter circumference, measuring circumference of crown

Assign trees

At end: have students locate assigned trees in park

**Day 4: measurement day for Resilient Trees Initiative**

*Equipment: Earthwatch kits, cameras, computers/phones for data entry*

Students measure tree/s in park

Document trees with photographs

Data entry if possible

**Day 5: closing exercise/reflection**

To be determined by teacher according to local custom and class needs

*Suggestions: Socratic seminar/council; individual reflections; team assignments on specific issues*