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