

# Tree Mapping - Student Field Guide

**Quadrant Team** \_\_\_\_\_

Names \_\_\_\_\_

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## Task

Work as a team to map trees greater than 15cm circumference on your Carbon Cycle Site.

## Materials

- Clipboard (1)
- Pencil (2)
- Tree Data Entry Sheet* (1)
- Tree Mapping - Student Field Guide (tree verification, species ID)*
- Compass (1)
- Copy of Sample Site Aerial Image
- Marker
- Tree identification guide/local species keys (2)
- Species Groups List* (2)

## Procedure

1. Your quadrant team is written at the top of the page. All of the following field procedures are to help you map your quadrant.
2. Read the attached field instruction guides. Observe how many people should work on each task. Also view the Tree Data Entry Sheet. Write down anything that is unclear and discuss it with your team and the teacher.
3. Select a team data recorder. This person should be able to write clearly and record data quickly and accurately. The data recorder will need the Tree Data Entry Sheet, a clipboard and one pencil.
4. Use the compass to orient the whole team to the correct area of the sample site, as assigned to you by the teacher.
5. Divide remaining team members between the Tree Verification and Species ID groups.
6. When tree verification and species ID, are complete, your team is ready to make tree circumference at breast height (CBH) measurements. (This may also be done simultaneously if your teacher instructs you to do so. They may also ask you to make shrub/sapling measurements at this time.)

## Field Guide Instructions - **Tree Verification**

### Tree Verification Group - 2 people

#### Task

To verify each plant in your team's quadrant/area as either a tree or shrub/sapling, mark them on the aerial image, and number the trees using the naming structure agreed upon by the class.

#### Materials

- Carbon Cycle Site Aerial Image
- Marker

#### Procedure

1. Begin along the left-hand side of your quadrant/area, planning to move in a clockwise direction.
2. Identify the first plant in your area and find it on the aerial image.
3. Examine the plant and verify if it is a tree or shrub/sapling.
  - a) Trees are single-stemmed woody plants that are greater than 15cm circumference at 1.35m.
  - b) Saplings are single-stemmed woody plants that are currently less than 15cm circumference at 1.35m.
  - c) Shrubs are multi-stemmed woody plants (that can range significantly in size).
4. If it is a tree, circle it on the aerial image, assign it a number and report that information to the team data recorder, record on both the image and on the *Tree Data Entry Sheet*.
  - a) The Species ID group can now use their tree identification guides to provide a common or scientific name for that tree.
5. Repeat these steps until each plant in the quadrant has been verified.

## Field Guide Instructions - **Species ID**

### Tree Species Group - 2-4 people

#### Task

Identify species (or general species group, e.g. pine, oak) for all live trees greater than 15 cm circumference on your Carbon Cycle Site.

#### Materials

- Clipboard
- Pencil
- Tree Data Sheet*
- Flexible measuring tape (best if 150cm – 300cm)
- Tree identification guide/local species keys
- Species Groups List* adapted from Jenkins et al. paper

#### Procedure

1. Start with the first tree in your quadrant/area and work around the site clockwise.
2. Using a species ID key or guide, identify the Genus and species (and optional: common name) of each tree.
3. Report species information to the team data recorder to be recorded on the *Tree Data Entry Sheet*.
4. Repeat this process for all trees in your quadrant.
5. After completing species ID, use the *Species Groups List* (or similar classification system) to assign all recorded species into species group categories. [This step can also be done during data entry into the computer.]

## Tree Data Collection Challenge – Team Scoring Rubric

Criteria	Developing (Needs improvement)	Proficient (Average)	Exemplary
Tool Use	Tools were used for purposes which they were not designed or were not used correctly	Demonstrated correct tool use after some teacher guidance	Demonstrated proficient use of tools without teacher assistance
Measurements – Precision and Accuracy	Did not follow resource directions for difficult to measure trees, correct units were used occasionally, data did not typically match measurements made during peer evaluation	Followed resource directions, used correct units on data sheet, data mostly matched measurements made during peer evaluation	Closely followed resource directions, double checked difficult to measure trees, used correct units on data sheet, data matched measurements made during peer evaluation
Tree Data Entry Sheet	Data sheet is incorrect, incomplete, or illegible	Data sheet is completed, legible, and notes are filled out where appropriate	Data sheet is completed, legible, and any notes are clear, concise (scientific in nature)
Participation	Some team members are involved in the data collection process.	All team members are involved in some part of the data collection process	Team delegates tasks so each member has an assigned role at all stages of the data collection process
Communication	Team members talk over one another, report data to recorder – but needs to be repeated often, do not seek answers to team questions from the teacher or each other	Team members listen when others are talking, report data to the recorder, ask the teacher questions when difficulties arise	Team members discuss procedures and tasks, report data loudly and clearly, ask each other questions when difficulties arise
Efficiency	Team was unable to work cooperatively to complete tasks, teacher assistance was required throughout the data collection process	Team worked cooperatively to complete tasks quickly and correctly with some teacher assistance on delegation of roles and problem solving	Team worked cooperatively to delegate and complete tasks quickly and correctly, problems were addressed and solved with little teacher assistance

## Field Guide Instructions – Tagging (Optional)

### Task

Tag all trees greater than 15 cm circumference on your Carbon Cycle Sample Site.

### Materials

- Fishing line, scissors and tree tags
- OR** Nails, hammer, tree tags
- OR** Spray paint/tree crayons/paint sticks
- Flexible measuring tape (best if 150cm – 300cm)
- Pencil
- Compass

### Procedure

1. Stand at plot center facing north, east, south or west (according to your assigned quadrant). Use a compass if you are unsure.
2. Turn your body clockwise until you are facing the tree closest to that direction, this will be the first ‘tagged’ tree.
3. Use the fishing line to tie a single tree tag around each tree. Be sure to tie it loosely enough to provide room for the tree to grow and not break the line.

#### **OR**

4. Use a hammer and nail to attach a single tree tag near the **base** of each tree. Be sure to use long nails and not to pound them in too much leaving room for the tree to grow.

#### **OR**

5. Paint a single number on each tree.
6. Work as a team to **continue tagging trees** by moving from the center toward the edges in a clockwise direction. This method will prevent you from missing any trees.  
*a. NOTE: Do not tag any trees that are already dead.*
7. Once tree tagging has begun, one person should move around the plot and mark each tag with a number using a pencil or nail.  
*a. Number convention should be the name of the quadrant and the tree number, e.g. N1, E20, etc.*
8. Repeat the tagging process on all trees greater than 15 cm circumference at breast height (1.35m). If you are unsure if a tree is 15 cm, use the measuring tape to confirm whether it should be tagged.