Modeling the Forest

Can you measure the forest?

Forest are an important part of our planet. They provide us with timber and pulp, recreation, habitat for wildlife, and improve the air quality. In this activity you’ll learn how forest scientists, such as dendrologists, measure and monitor forests.

Activity 1: Where are the forests?

1. What percentage of the United States’ land area is covered in forest?

\[
\frac{\text{Part}}{\text{Whole}} \times 100\% =
\]

2. On the map, shade in the areas you think are forested:

![Map of the United States with forested areas shaded]

3. What is biomass? ____________________________________________________________________

4. Where are the areas of greatest forest biomass in the USA? ____________________________________________________________________

Did You Know?

Over a year, an acre of forest consumes the amount of CO₂ produced by 2 cars annually.

Two trees provide enough oxygen for one person per year.
Activity 2: Measuring Trees

1. For these 3 trees, circle the crown and draw a rectangle for the trunk.

2. What is DBH? 

3. Practice using \( C = \pi D \) (where \( C \) = circumference, \( D \) = diameter, and \( \pi \approx 3.14 \)):

   1. \( D = 2 \), \( C = ? \)

   2. \( D = 6 \), \( C = ? \)

   3. \( D = 1 \), \( C = ? \)

   4. \( C = 3.14 \), \( D = ? \)

   5. Radius (\( R \)) = 3, \( D = ? \)

6. For every 1 inch increase in diameter, the circumference increases _____ inches.

Credits: Jennifer DeBruyn, Kelly Sturner
The 4-H Name & Emblem is protected under 18 USC 707.
4. Your leader will show you how to make your own DBH tape. Test it out!

   What is the diameter of the tree cookie using a ruler?___________________________

   What is the diameter of the tree cookie using DBH tape?_________________________

   What is the diameter of your head?___________________________________________


**Activity 3: Measuring Forests**

1. Stand density is:_____________________________________________________________

2. Calculate the stand density of these plots:

   **A**
   
   15 ft
   
   25 ft
   
   Aerial view of a forest plot, trunks only

   **B**
   
   5 ft
   
   8 ft
   
   Aerial view of a forest plot, trunks only

3. If everyone in this room were trees, what would be our stand density?