Investigating Forests and Climate

What are Trees made of? ACTIVITY WORKSHEET

Names: _____

Date: _____

Location:_____

Resources per group:

Worksheet, Tree ID Swatch, Clipboard, Camera, Pencil, Calculator, Measuring Tape

Methoodology:

1. Pick a tree in the school grounds. Use your tree swatch to identify what species of tree it is.

Tree Species _____

2. Measure the circumference of the tree at standard chest height with measuring tape.

Circumference of Tree _____

3. **Calculate the biomass of the tree:**

Biomass is dry mass of a tree in kg including roots, trunk, branches and leaves. You can use the table convert below to approximate the biomass of your tree. Use the nearest value to the circumference of your tree.

Circumference (cm)	Tree dry weight (kg) Biomass
50	106
100	668
150	1,964
200	4,221
225	5,771
250	7,641
275	9,842
300	12,410
325	15,350

Biomass of Tree_____ Kg

As trees photosynthesise, they use sunlight to combine carbon dioxide (CO_2) from the atmosphere with water and nutrients from the ground to form carbohydrates which make up the tree's biomass. CO_2 is taken in at a certain rate and builds the mass of the tree over time. Biomass is a measure of the dry mass of woody and leaf matter in kg

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4. **Calculate the tree's carbon content by dividing it's biomass by 2:**

Biomass of Tree _____ kg ÷ 2 = Carbon Content _____ kg

Result = _____

> The carbon content of a tree is approximately 50% of its biomass (dry mass). The other 50% is made up of hydrogen, oxygen and nitrogen and other elements.

5. **Find out how much CO2 the tree has absorbed in its life by multiplying the carbon figure by 3.67**

Carbon content _____ Kg x 3.67 = CO2 the tree absorbed in its life_____ Kg

Result = _____

> Very roughly speaking, a tree absorbs up to 20 kg CO2 per year = about 1 tonne of carbon by age 40.
>
> However, these figures vary a lot between species and locations. Add the enormous amount of carbon stored in forest soils to that of the trees, and forests are major carbon storage reservoirs.
>
> **1 Tonne = 1000 Kg**