***Carbon Sequestration Challenge Question***

In questions #5 and #6 we assumed that a tree sequesters the same amount of carbon every year. We can test this by comparing the **amount of** **wood** added in first 5 years to the **amount of** **wood** added in the last 5 years of the tree’s life cycle and deriving the carbon sequestered at each stage.

**See example image below.**

1. How much wood was added, and how much carbon was sequestered, in the **first 5 years**?

|  |  |
| --- | --- |
|  | **First 5 years** |
| What is the radius? |  r5 = \_\_\_\_\_\_\_\_\_ cm |
| What is the biomass? | $Total Biomass=33811.8\frac{kg}{m^{2}}•radius of cookie (m)^{2}$ ***IMPORTANT: Convert radius (cm) to meters (m)***= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kg |
| What is the carbon sequestered? | $Total Carbon=Total Biomass / 2$ = \_\_\_\_\_\_\_\_\_\_\_\_\_ kg |

1. How much wood was added, and how much carbon was sequestered, in the **last 5 years**?

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Final size** **(starting point to edge)** | **5 years before final size**  | **Difference****(additional growth in last 5 years)** |
| What is the radius? | (copy from previous questions) rl = cm  | rl-5 = cm  | (column 2 – column 1) = cm  |
| What is the biomass? | (copy from previous questions) kg | $Total Biomass=33811.8\frac{kg}{m^{2}}•radius of cookie (m)^{2}$ ***IMPORTANT: Convert radius (cm) to meters (m)*** kg | (column 2 – column 1) kg |
| What is the carbon sequestered? | (copy from previous questions) kg | $Total Carbon=Total Biomass / 2$  kg | (column 2 – column 1) kg |

1. Which was greater 🡪 the wood added / carbon sequestered in the first 5 years or the last 5 years?
2. Why do you think the amount of wood added / carbon sequestered changes over the life of a tree?