

# Activity 4 – My Green Up Data

## 1) Upload your green up data to globe.gov website

To share the data with other schools and to see a graph of your leaf growing in time, upload the data to the GLOBE website. It is not complicated, just give it a try.

- Follow the guide we prepared for you.
- You need the data that you collected at Activities 1, 2 and 3.

Date (day and month)	Leaf 1 (Dormant, Swelling, Budburst, Length (mm), Lost)	Leaf 2 (Dormant, Swelling, Budburst, Length (mm), Lost)	Leaf 3 (Dormant, Swelling, Budburst, Length (mm), Lost)	Leaf 4 (Dormant, Swelling, Budburst, Length (mm), Lost)
3 March	dormant	dormant	dormant	dormant
6 March	dormant	dormant	dormant	dormant
11 March	swelling	swelling	swelling	dormant
14 March	budburst	budburst	swelling	swelling
18 March	2	4	budburst	budburst
22 March	6	10	5	6

## 2) See the graph of your tree budburst at the GLOBE [Visualization tool](#)

Once you upload data correctly, you can do amazing things:

- See the data on world map
- Draw a graph with your data that you can download (pdf), share or print out
- Compare data from different locations – in graph and spreadsheet

It is easy. If you are not familiar with the Visualization tool, please see the [Visualisation System "Vis" Tutorials](#).



## 3) Compare your data to the data of another school and to your data from previous years at the GLOBE [Visualization tool](#)

- Filter out the Green Up data from schools in your country or any other location
- Compare the same species and see if the budburst date was the same or different
- Ask students to come with a hypothesis why the budburst date differs. Let them find out more about the specific conditions of the site where the tree grows (latitude, longitude, elevation, air temperature, precipitation)
- If you have data from your previous observations compare them with this year's data. If the budburst dates differ, try to compare weather conditions of the two spring seasons.

## 4) Share your graph on the [Discussion forum](#). Comment on how your data differs from that of other schools or from your data from previous years.

**We are here to help you:** If you have any technical issue when uploading the data and working with Visualization tool, please contact us at [ee.region.globe@gmail.com](mailto:ee.region.globe@gmail.com). Most of the problems can be solved by one or two more clicks! We will tell you how to do it 😊

**The activity should be completed by 5<sup>th</sup> June.**



Upload data for at least one tree into GLOBE database and gain Data entry badge!



To allow students to enter data from their observations, create them [student accounts](#).

# Carbon Activity 4 – The Case of Missing Carbon

In this activity, your students will:

- Learn how trees influence carbon cycle at the global level.
- See how the CO<sub>2</sub> concentration and vegetation cycles are monitored by satellites.

*This activity is recommended for students over 12 years.*

## Basic information

Forests are a living pump. They exchange carbon between air, plants, animals and soil, and keep its amount in balance.

While it is impossible to measure influence of your tree on carbon in the air around, it is clear that trees of the northern hemisphere influence carbon cycle of the whole planet. This is visible in the graphs that display CO<sub>2</sub> concentration (Y axis) in Earth's middle troposphere over the seasonal cycle of vegetation (years on X axis).

The “rising arm” of the zig-zag shows the periods when respiration exceeds photosynthesis (autumn-winter). In other words, the biosphere releases more CO<sub>2</sub> to the atmosphere than absorbs.

The “falling arm” of the zig-zag shows the periods when photosynthesis exceeds respiration (spring-summer). In other words, the biosphere takes up more CO<sub>2</sub> than releases.

This pattern corresponds with the “green wave” in vegetation of the northern hemisphere, when plants and trees wake up and start to grow fast after the winter sleep.

## The Case of Missing Carbon Activity

- Play your students an animation “[Watching the Earth Breathe](#)”.
- Explain that the video shows changes in CO<sub>2</sub> concentration (yellow-orange layer) and vegetation cycles captured by satellites.
- Pause video at 0:02 (end of March), 0:07 (end of August) and 0:10 (end of November) and let students guess what month it is.
- You can also watch an animation “[How Much Carbon do Plants Take from the Atmosphere?](#)” to see, how much carbon is removed from atmosphere by plants at different times and places.

