



## Harvard Forest Schoolyard Ecology Online Graphing Exercises

### Our Changing Forests

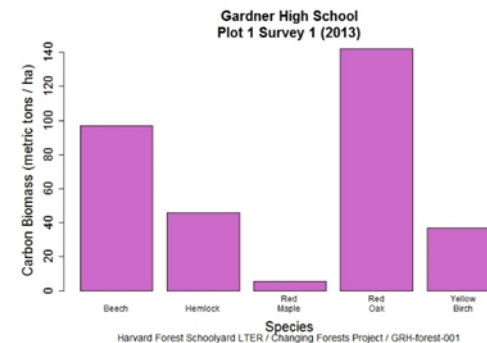
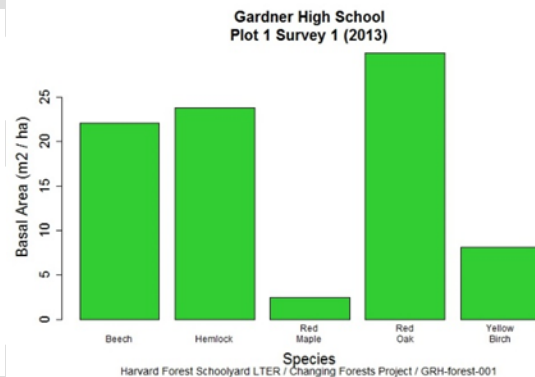
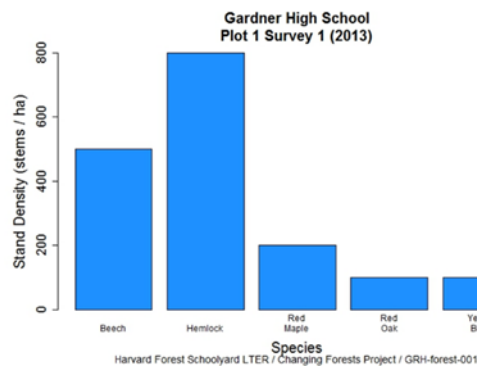
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The following exercises have been designed for teachers participating in the Harvard Forest Schoolyard LTER Program, using the online graphing tools that are built into the HF Schoolyard Database.

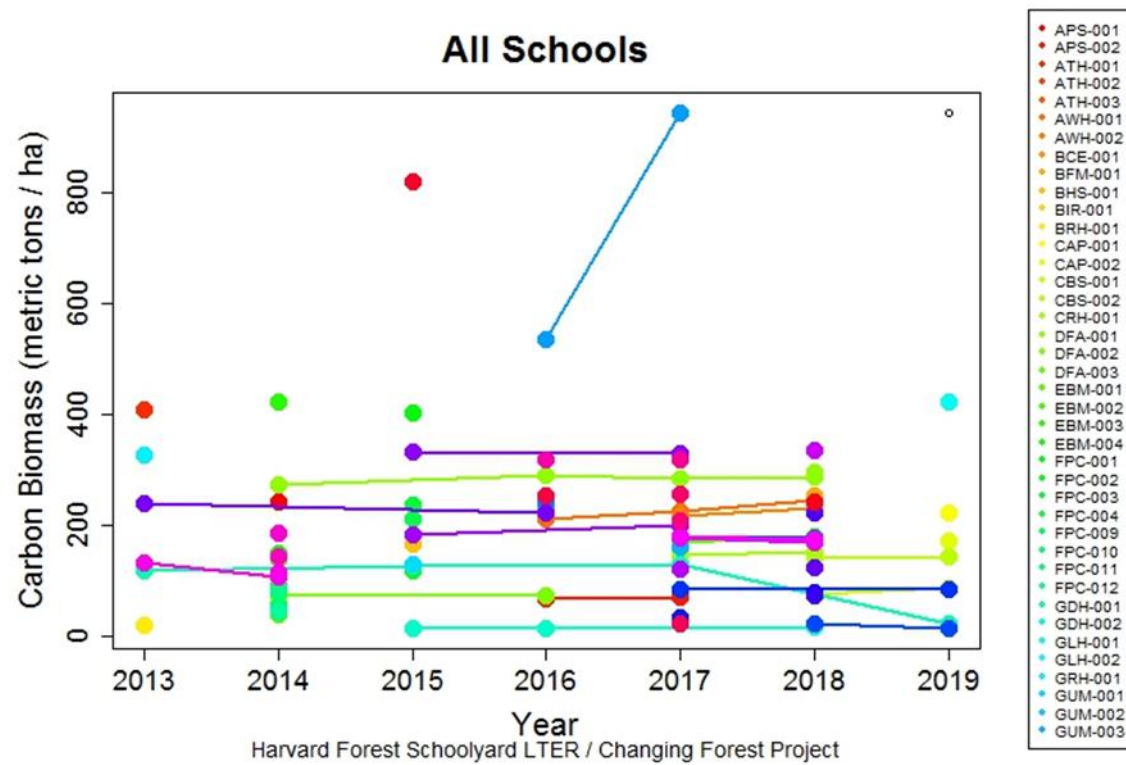
To access the HF online graphing tools, go to: [https://harvardforest2.fas.harvard.edu/asp/hf/php/k12/k12\\_graph.php](https://harvardforest2.fas.harvard.edu/asp/hf/php/k12/k12_graph.php)

Please respond to each of the following questions. Then try to create similar graphs for the project(s) you are working on, using your own site's data and/or the sites shown on cross site graphs.



1. How are the 3 graphs above similar and how are they different?

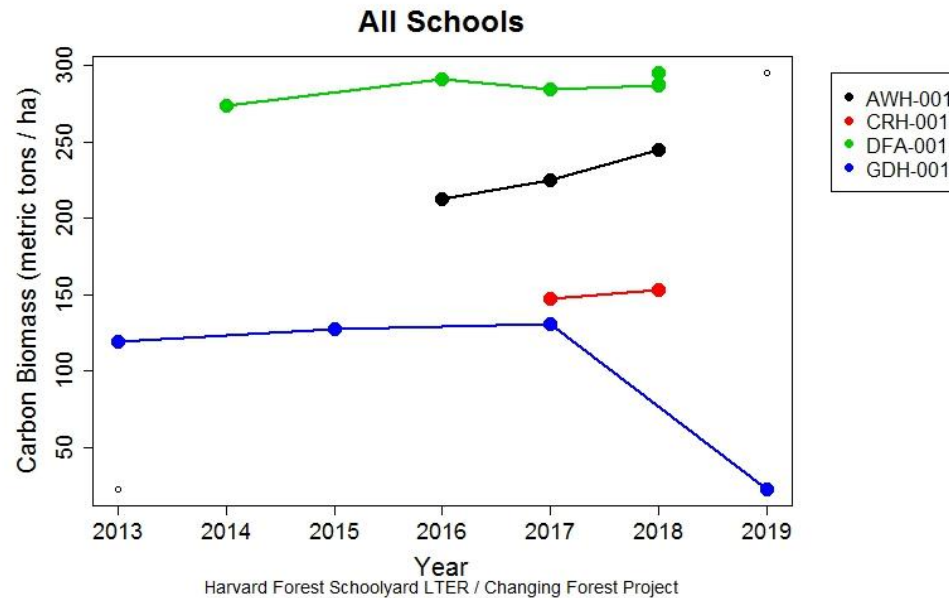
2. Why might we want to look at them separately and why might we compare them?



3. Looking at the graph above, we can see a picture of how Carbon Biomass is changing over time at all sites between 2013 and 2019. Do you see any trends?

4. Circle any particular data sets/lines that stand out as different than the rest. Can you think of any reason that data might look so different? Do you think the data are correct or not?

5. What is the lowest amount of biomass at any site in the network? What is the highest? What might that mean about the land use history of the site or other causes you might attribute to the difference in biomass?



6. This graph shows only those Our Changing Forests plots with 2 or more years of a data. Is there anything you notice that is different than what you saw in the graph of all plots?
7. What do you think could have happened at the Groton Dunstable (GDH) plot 1 between 2017 and 2019?

**Once you have created graphs like each of these above using your own site's data or the same cross-site data, depending on the graph and the data available, you may choose one of the following options:**

- Complete the online graphing exercises for one or more other projects.

- Begin the Level 2 Graphing Exercises by Dr. Betsy Colburn.
- Play with the online graphing tool to create more varieties of graphs based on your own scientific questions.
- Develop a lesson plan for your students using the online graphing tool to meet your educational goals.

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