Possible Extensions

This lesson can be further extended to revisit the role of pollination in the plant life cycle (MS-LS1-4; NRC 2013). In the spring, we have students determine how many flowers develop into fruit by counting the number of flowers on a **½** meter section of redbud branch. This is actually the most dangerous part of the lesson. **If you have students with known bee-sting allergies, make sure they have an epi-pen and encourage them to play the part of data recorder or other duty which minimizes the risk of problematic insect interactions with honeybees and other pollinators.** Once the flowers die back, we return to the redbud to count the number of developing fruit. A small piece of flagging tape helps to find the same branch. Students then calculate loss of reproductive potential due to lack of pollination and compare this to the number of mature fruit in the fall. They also use the average number of seeds per fruit to calculate potential offspring and apply this number to flowers that were not pollinated. **For each ½ meter branch, have groups record:**

a) **Number of flowers (early spring)**
b) **Number early fruits (early summer)**
c) **Number late fruits (late summer/early fall)**

These data can then be averaged for the class and plotted in graphical form. We guide them by asking leading questions such as, "How many potential offspring were lost as a result of lack of pollination? How many were lost to unpredictable factors such as weather or vertebrates? Which factor is most important to the reproductive potential of redbud? Which is most important to the RBC carbon cycle?" Further extensions of this include monitoring phonological events such as the first flower etc. and how climate change may affect the relationships among the plants, beetles, and wasps.