<u>Socratic Seminar</u>
Trees Tested as Pollutant Traps

Health problems such as asthma, stroke, diabetes, obesity, and dementia have been linked to fine particulate matter pollution, particularly ultrafine particles generated by traffic emission. Scientists think that trees and vegetation could help trap particles and clean the air, but very few scientific studies have tested this. To fill this gap, Dr. Maher at the Lancaster University in the UK conducted a wind tunnel study. Branches from nine temperate tree species including birch, elder, hawthorn, cherry maple, ash, and yew were exposed to fumes from a diesel engine in wind tunnel. The researchers found that some species, like birch, were more effective than other species at trapping particles. Leaf characteristics played a pivotal role in holding particulate matter, but other features of the trees should also be considered such as if the tree loses leaves in the winter, produces pollen, or has toxic berries. Scientists quoted in the article suggest that more research is needed on how to use vegetation to trap pollution and also warned that plantings should be used in addition to reducing emissions not as a substitute.

Questions to think about

1) Is it more important to focus on planting vegetation to remove pollution versus lessening the pollution created?
2) What other things (besides tree species) need to be considered for plantings intended to trap air pollution?
3) What issues could arise from the collection of pollutants on the trees? (i.e., tree damage, soil/water pollution)?

References:

Link to an article about the study in *The Scientist*:
https://www.the-scientist.com/news-opinion/trees-tested-as-pollutant-traps-65940

Link to the study published in Environmental Science and Technology:
https://pubs.acs.org/doi/10.1021/acs.est.8b06629