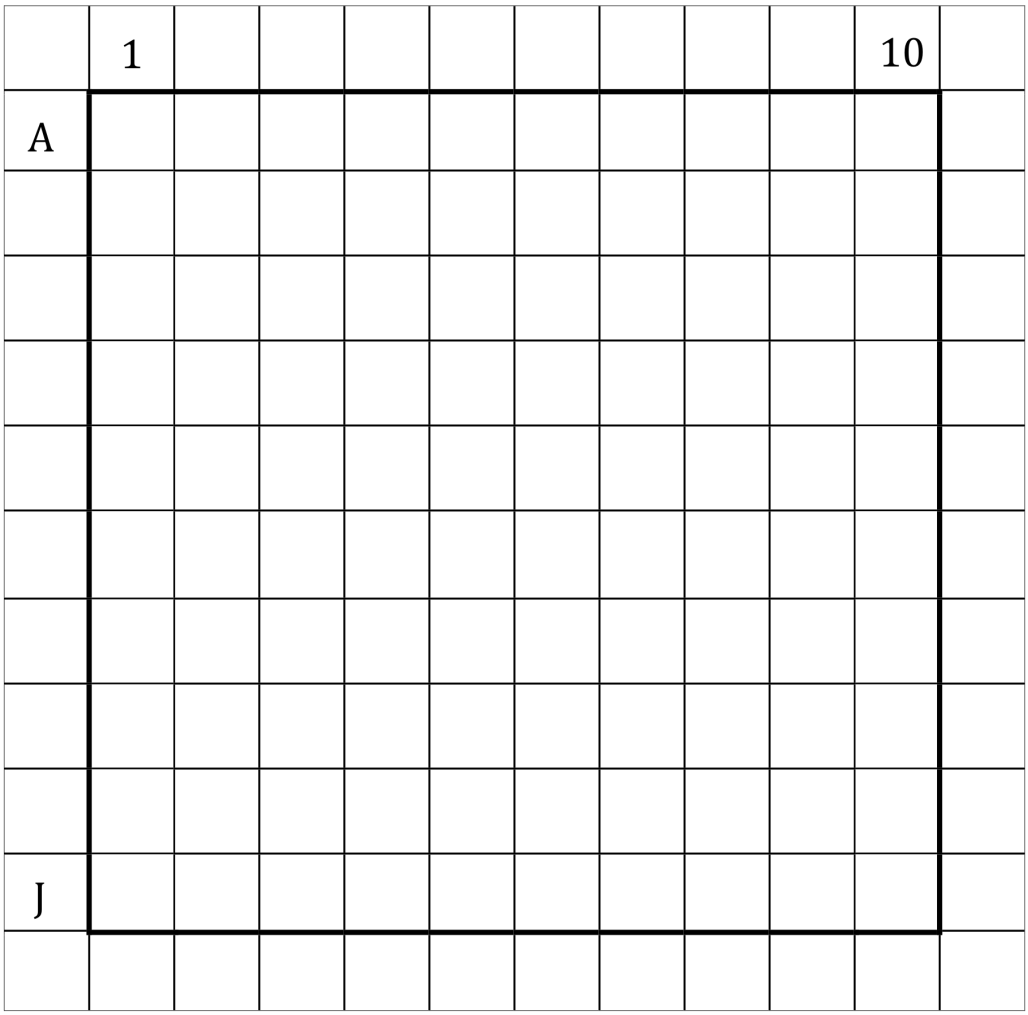
Pollen Mapping: Using Data to Identify Potential Crime Scene Locations

In the following activity, you will use the mapping template, as well given data, to identify the possible location for the stolen painting. In order to do this, you must first be able to identify pollen distribution patterns based on the methods of pollen distribution used by the plant.

Mapping is an important part of crime scene investigation, particularly investigations involving pollen or other plant materials. Use the following map grid and data to identify the possible location of the crime scene. To do this:

1. Number the grid horizontally (across the top and bottom) using numbers 1-10. The first and last numbers have been filled out for you.
2. Number the grid vertically (down the sides) using letters A-J. The first and last letters have been filled out for you.
3. You now have a coordinate system for this map. For instance, the box at the intersection of 1 and A is 1A, and the box at the intersection of 10 and J is 10J. This coordinate system will also help you represent distances, since each box represents a .1 mile by .1 mile square.
4. This is a map of one square mile of forest. A stream runs from square 1B to 7J. Sketch the general path of the stream using a pencil line. You do NOT need to fill each square!
5. There is a road through this section of forest as well. It runs from 9A to 9J. Again, sketch the path with a pencil line. You do NOT need to fill each square.
6. The suspect's clothing and wheel-wells of his car contained the following: fern spores; pine pollen; oak pollen; shrub pollen; and various plant materials, dirt, and other pieces of trace evidence.
7. We will be mapping four types of plants, one that uses spores and three that use pollen.
8. Plant one is a fern and uses spores for distribution. These plants are found in moist areas, since they need water in order to reproduce. As such, they are found on each side of the stream. Mark Xs along each side of the stream to indicate the distribution of ferns.
9. Plant two is a pine tree, has cones, and uses wind distribution for its pollen. Although wind-distributed pollen has the chance of traveling far from a plant, it is usually found clustered around the plant in question, so the pollen would be unlikely to travel more than .1 miles from the plant. Pine trees are found in squares 6F, 7F, 6G and 7G. Lightly shade in these squares. You may wish to shade in the surrounding squares to show where pine pollen could be distributed by the wind. Distribution is not necessarily uniform, so your shading does not need to fill all of the surrounding boxes.
10. Plant three is an oak tree that has flowers, but uses wind distribution for its pollen. Oaks are distributed throughout the forest, so the pollen is found ranging horizontally from 4B to 10B and vertically from 4B to 4J, as a large rectangle that encompasses much of the forest. Lightly shade in the rectangle.
11. Plant three is a flowering plant that grows in shrubs and uses animal distributed pollen. This plant is found along the roadside and stream closer to the road. Its

pollen is unlikely to be very far from the parent plants, so should be confined to the areas around the plants. Use light circles to indicate the distribution of this plant and its pollen. You may wish to color code to differentiate it from the pine pollen.



1 Mile = 5" (the mile is marked by darker lines)

☐ = >s 1/10 mile X 1/10 mile or 6.4 acres

Discussion/Analysis Questions

1. From your map of pollen distribution in the forest, where would you look for the painting? Explain!
2. Compare your map to a classmate's. Are they the same or different? If they are similar, explain why. If they are different, explain what you think accounts for the difference.
3. What evidence was most useful in making your decision as to where the painting might be? What evidence was less useful in making your decision? Explain!
4. What other evidence would be useful in your investigation of the missing painting? Once you have recovered the painting, what questions would you have as an investigator?
5. Has this activity changed your opinion about why knowledge of plants is important? Why or why not?