Assignment 2: IO, IO, so...

This assignment must be completed individually. Working in groups is not permitted.
Due Wednesday, March 6th at the start of class.

1. This project has two parts, the first of which is just to get SFML libraries working on a computer you have access to. When you've done that, you can meet that requirement by emailing me with the subject, "SFML window working."

2. Write down these two chemical symbols, on the first line write LI, for lithium, and FE for iron. Underneath write NE for neon. And AR for Argon. Reading across you get the four letter words, life and near. And reading down you get, line and fear, completing a miniature word square composed only of chemical symbols. The object is to create a 3X3 square, composed of nine chemical symbols, in which each of the three rows across and each of the columns down, spells a word. You may use either one letter or two letter chemical symbols, but the idea is to use as many two letter ones as possible. Only words from the OSPD are allowed, preferable 6-letter words, but you may also have 3, 4 or 5-letter words.

Here's a plan for writing a computer program to find an exhaustive list of 3-by-3 chemical word grids:

- Get a list of all six letter words in a text file. I start-paged "six letter words" and got to a list of Scrabble words, which I (perhaps mistakenly!) took as good as gold. If anything, I was worried about saying some of these words with a straight face.

- Check all combinations of chemical symbols and see whether or not they're in the list of 6-letter words. If they're in the list, write them to another file, which will contain only (one hopes) many 6-letter words, consisting of three consecutive 2-letter chemical symbols, like CaBaNa (calcium, barium, Sodium.)

- Construct a vector of vectors of strings consisting of 1 or 2 characters representing a chemical symbol.

- Sort these alphabetically.

- Use lots of reading and writing to files to build an interlocking 3X3 grid following an algorithm something like this:
  - For each chemWord find all other chemWords with the same first symbol, but sharing no other symbols and fill the matrix with the first word across the first row and the second word down the first column.
  - For each such gnomon, check to see if there's a 2 across whose second symbol matches the second symbol the 2 down (without repeating a symbol) and
  - Check that if you've got a good middle, if there's a 2-down and 2-across combo that also allows for words in the 3-across and 3-down positions (without repeating a symbol) and
  - If you've found all the above, does the third symbol of 3-across match the third symbole of 3-down (without repeating a symbol) ? If so, hooray! print to file!