

Electron Configuration Battleship

Purpose: To teach students how to look at an element on the periodic table and instantly determine its electron configuration.

Materials: 1 Manila file folder per student, 2 laminated periodic tables per folder, dry-erase or overhead markers (1 per student).

Assembly: Tape the periodic tables to the top and the bottom of the inside of the manila folder, both of them right-side up.

Playing the Game:

- The game is played like traditional battleship in groups of two students. Each student has the manila folder open so that the opponent cannot see either of his/her periodic tables.
- Each player puts a line through the appropriate number of elements to indicate an aircraft carrier (5 elements), a battleship (4 elements), a submarine (3 elements), a destroyer (3 elements), and a PT boat (2 elements). Note: the number of ships can be increased which will create more "hits" and more fun!
- The first player calls a valence configuration for an element of his/her choice. For example, carbon would be $2p^2$. The other player states the name of the element called (in order to verify understanding of the "code" between the players), and then says "hit" or "miss."
- The player stating the configuration marks the top periodic table to note shots taken and the player being "shot at" marks hits and misses on the bottom periodic table.
- Play continues until all ships are "sunk."

Extensions: The method of stating configurations can vary. For example, Ge could be stated $4p^2$ or $4s^24p^2$. Iron could be stated $3d^6$ or $4s^23d^6$, etc.