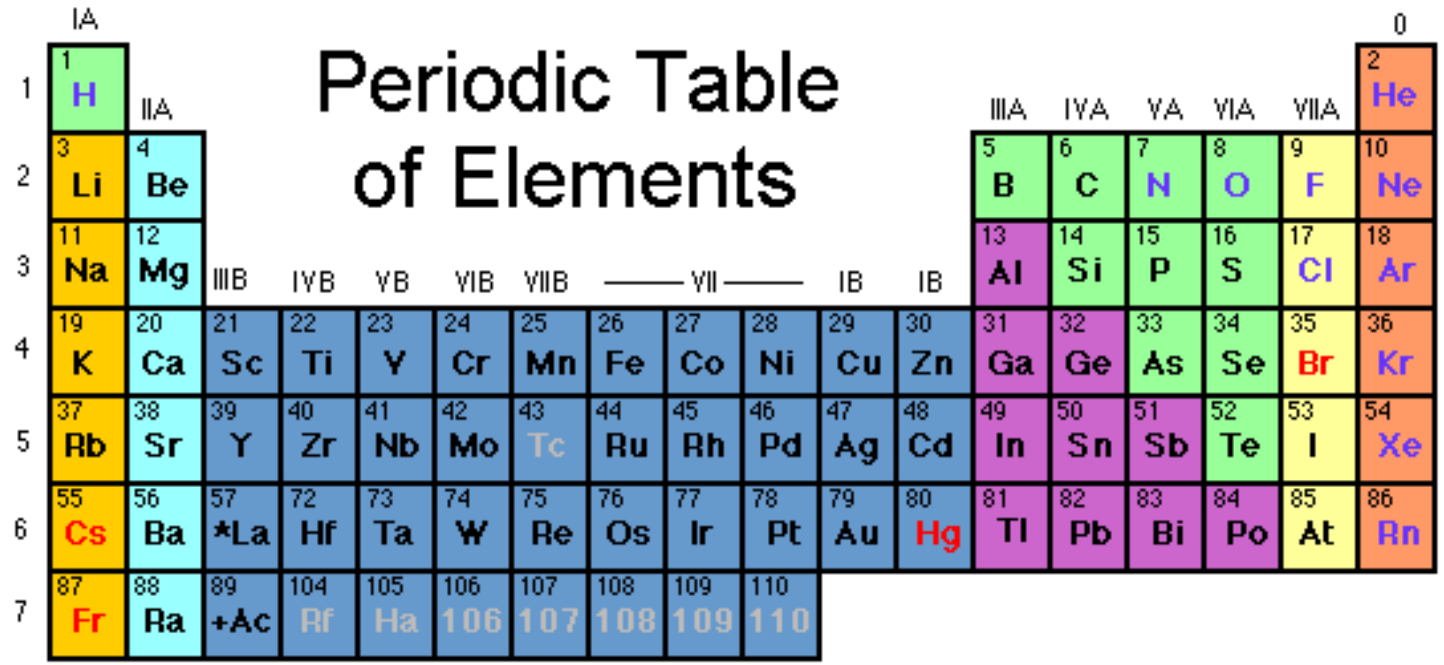
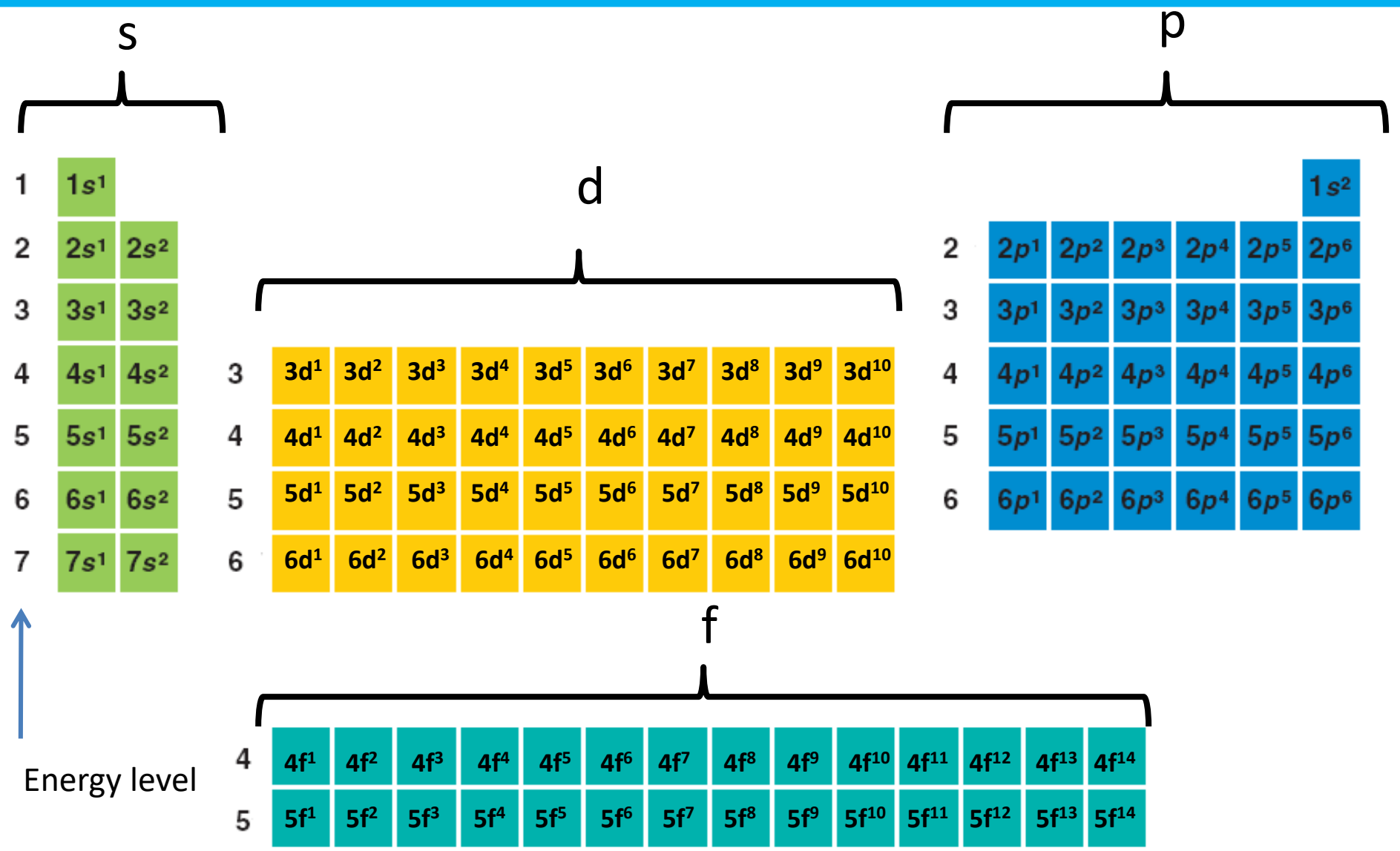
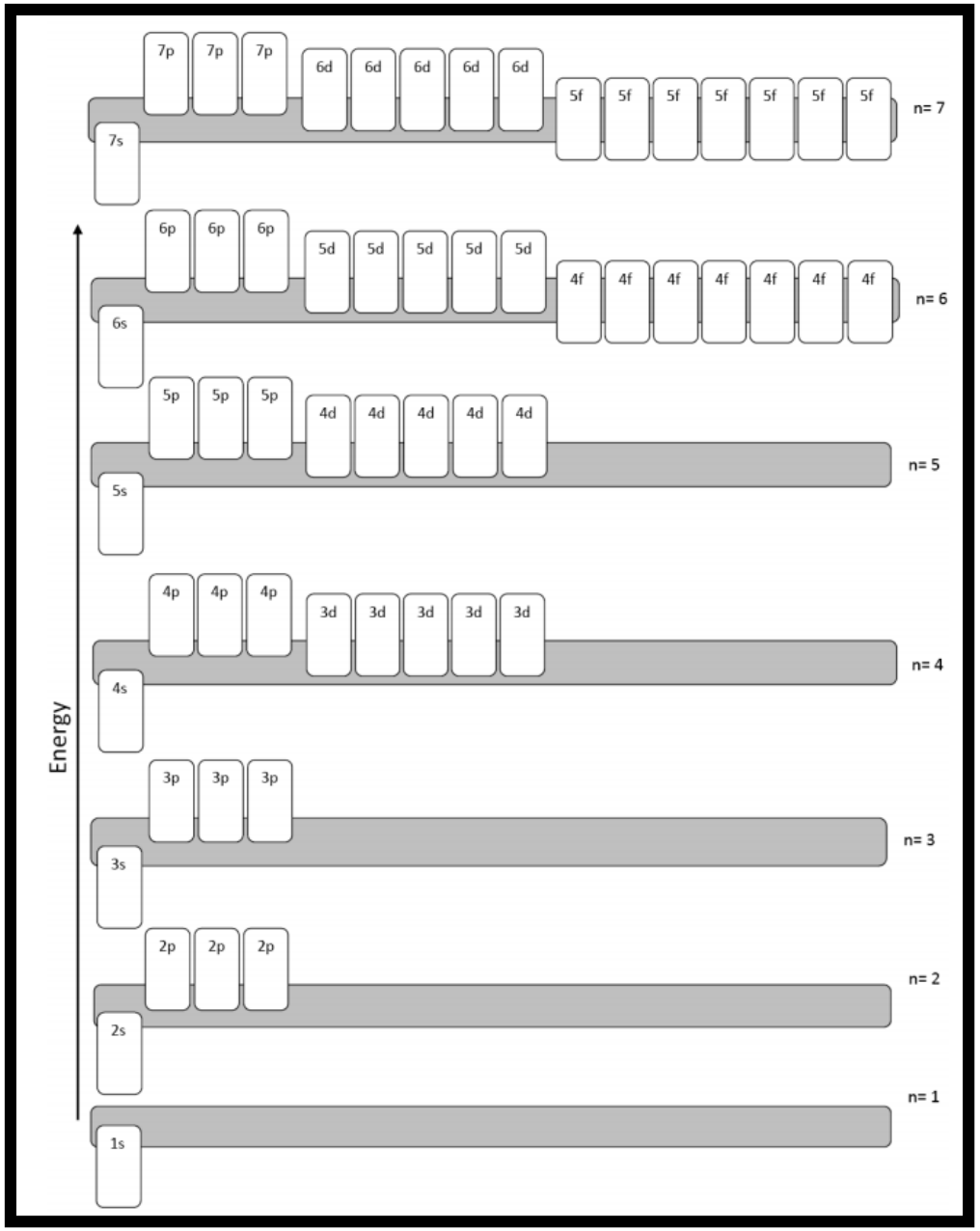
Trick for using the periodic table to write electron configurations so you don't have to use an orbital diagram!



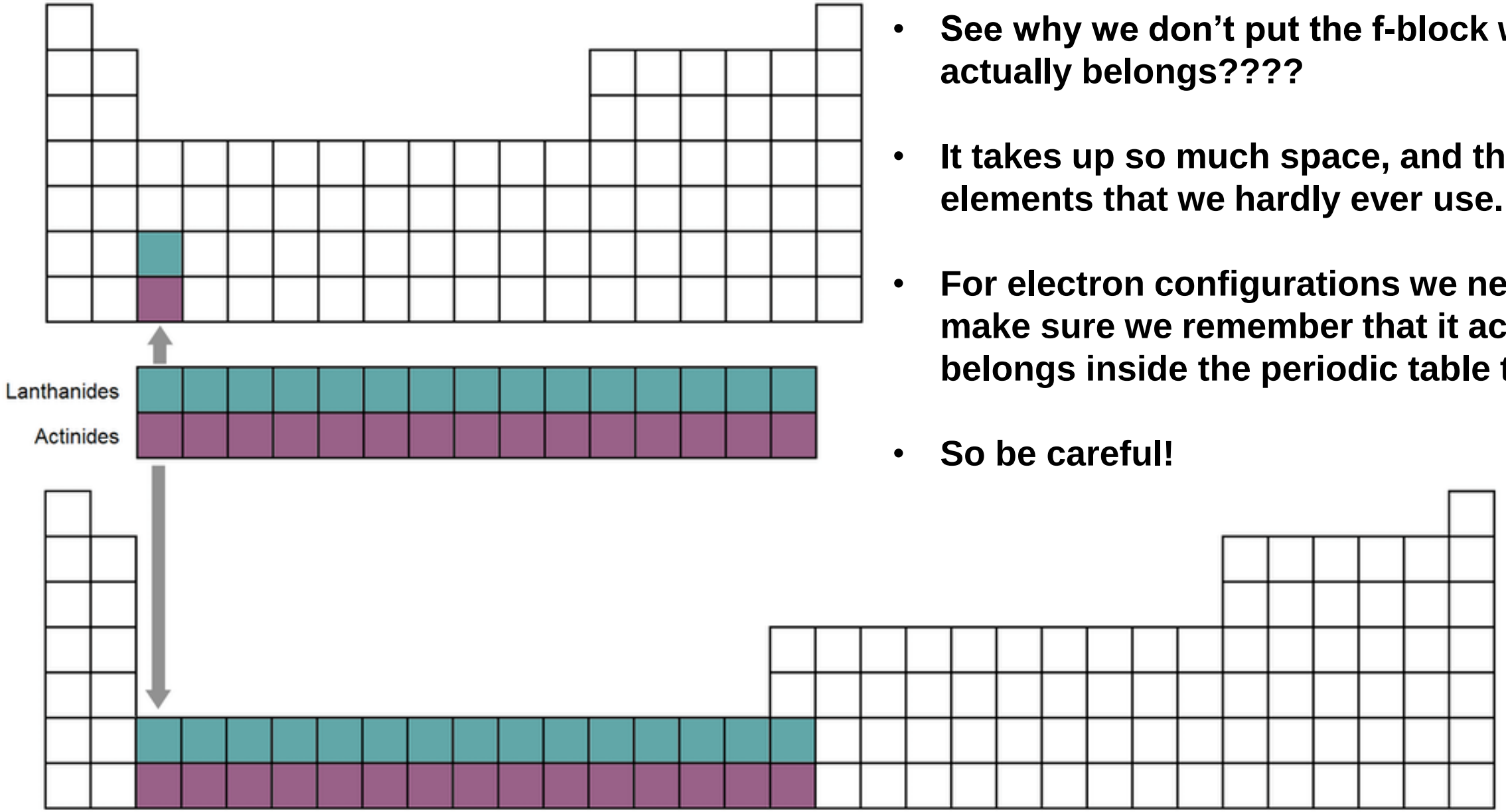
The periodic table orders elements for you!





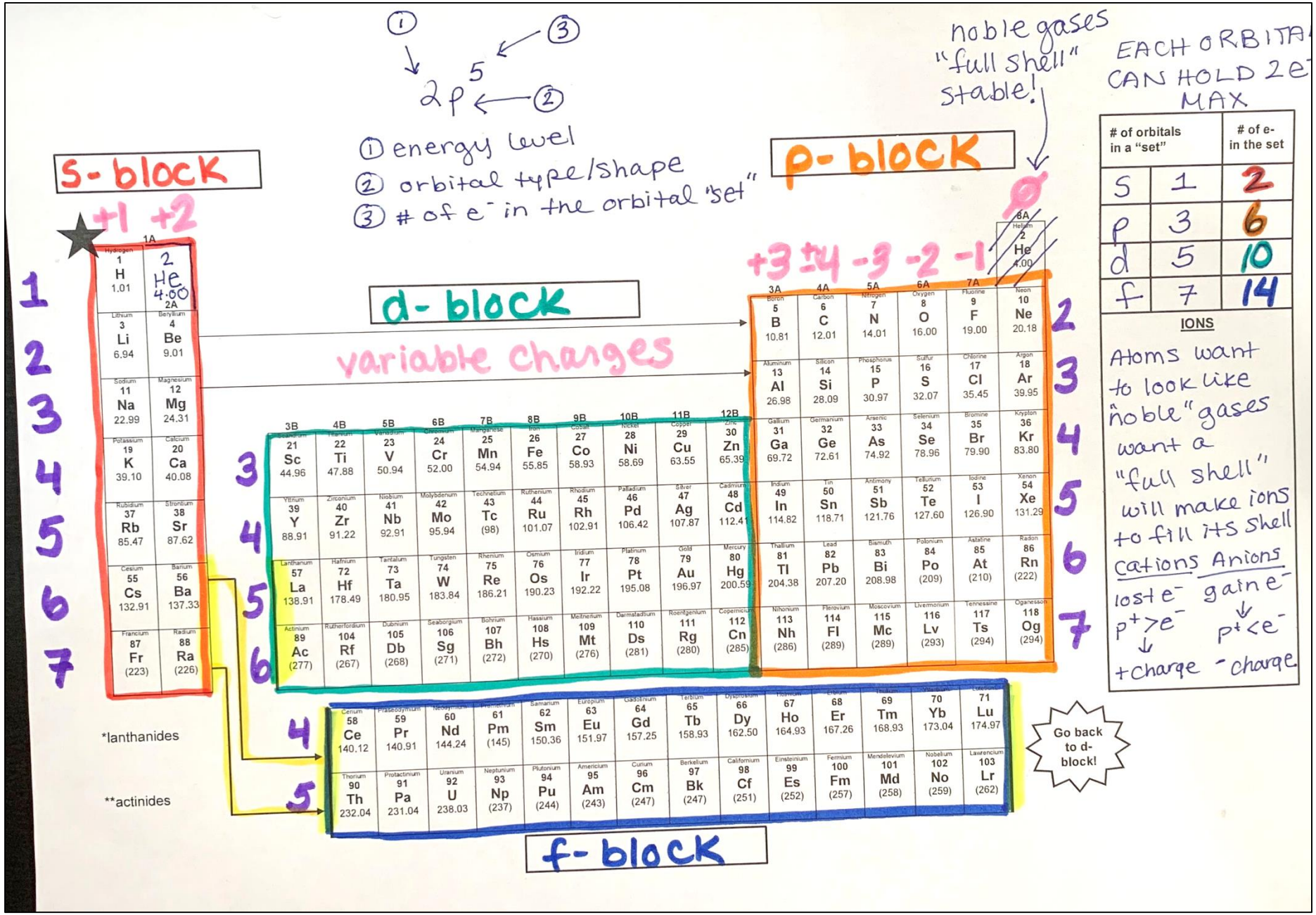
- **The periodic table rows and "blocks" are in the same order as our orbital diagram!**
- **Once you can see the pattern you won't need an orbital diagram anymore!**
- **It takes significant practice, and some people have an easier time seeing patterns than others. But with practice you will be able to write an electron configuration with nothing but your periodic table!**

The placement of the Lanthanides and Actinoides



- **See why we don’t put the f-block where it actually belongs????**
- **It takes up so much space, and they are elements that we hardly ever use.**
- **For electron configurations we need to make sure we remember that it actually belongs inside the periodic table though!**
- **So be careful!**

Time to set up our Periodic Table so we can see the trick!


1
3
2p 5
2
① energy level
② orbital type/shape
③ # of e⁻ in the orbital "set"
noble gases "full shell" stable!
EACH ORBITAL CAN HOLD 2e⁻ MAX
S-block
+1 +2
p-block
+3 ±4 -3 -2 -1
d-block
variable charges
f-block
*lanthanides
**actinides
Go back to d-block!
# of orbitals in a "set"
# of e- in the set
s 1 2
p 3 6
d 5 10
f 7 14
IONS
Atoms want to look like "noble" gases want a "full shell" will make ions to fill its shell
Cations
lost e⁻
p⁺ > e⁻
+ charge
Anions
gain e⁻
p⁺ < e⁻
- charge

YouTube Link to presentation of Mrs. Farmer setting up the Periodic Table and teaching the trick:

https://youtu.be/8cR8wFEHbDI

Another video on setting up your periodic table
https://www.youtube.com/watch?v=qb0hia__crM

Another video on using your periodic table to write configs.
https://www.youtube.com/watch?v=ououF9nHUhk