

N-11 Orbital Diagrams

Target: I can show on an orbital diagram where the electrons are in an atom.

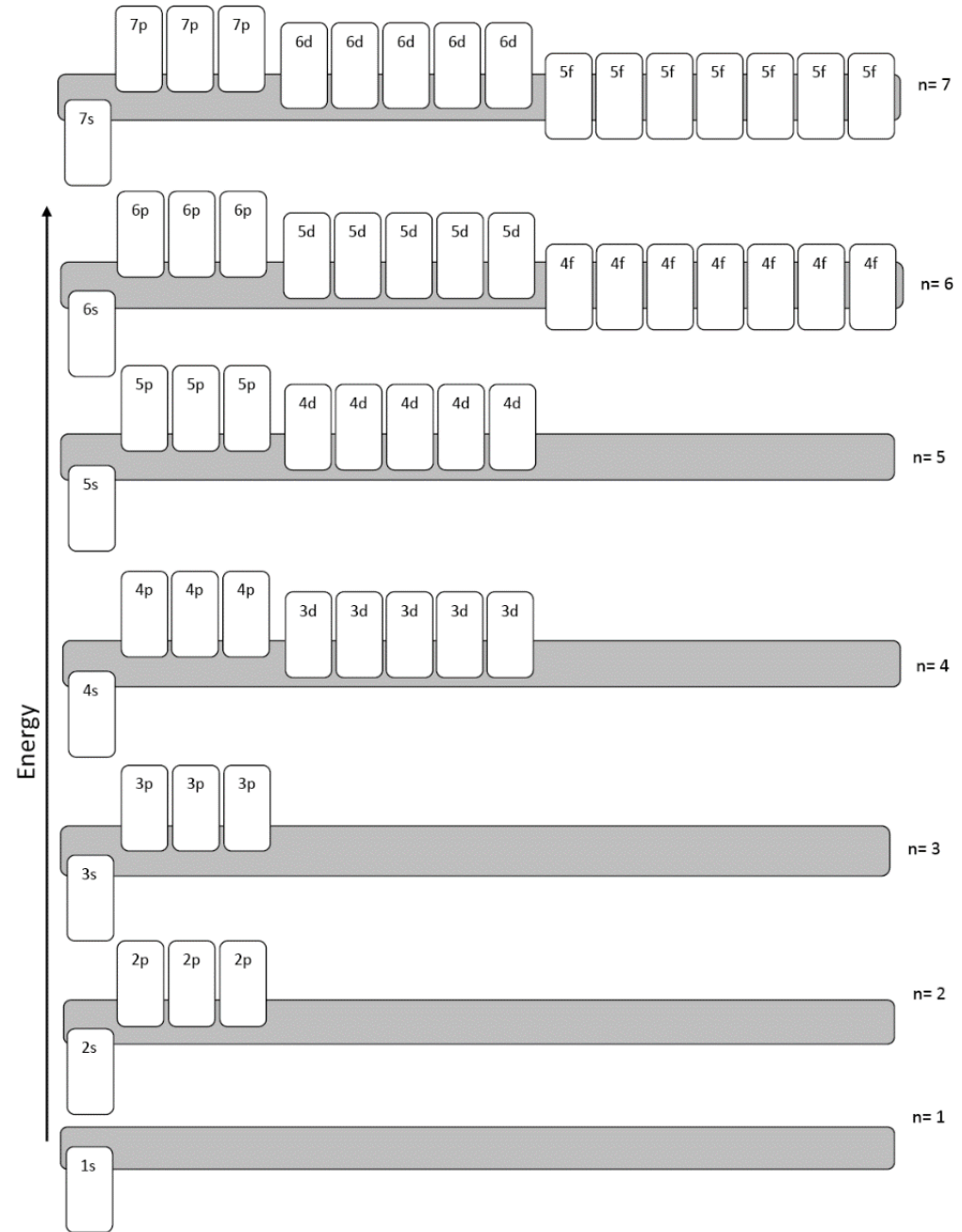
Link to YouTube Presentation: <https://youtu.be/Unket5xtmjU>

N-11 Orbital Diagrams

**How do you know what
order the electrons and
orbitals go in???**

Orbital Diagram

A chart that shows you the order that the orbitals go in.

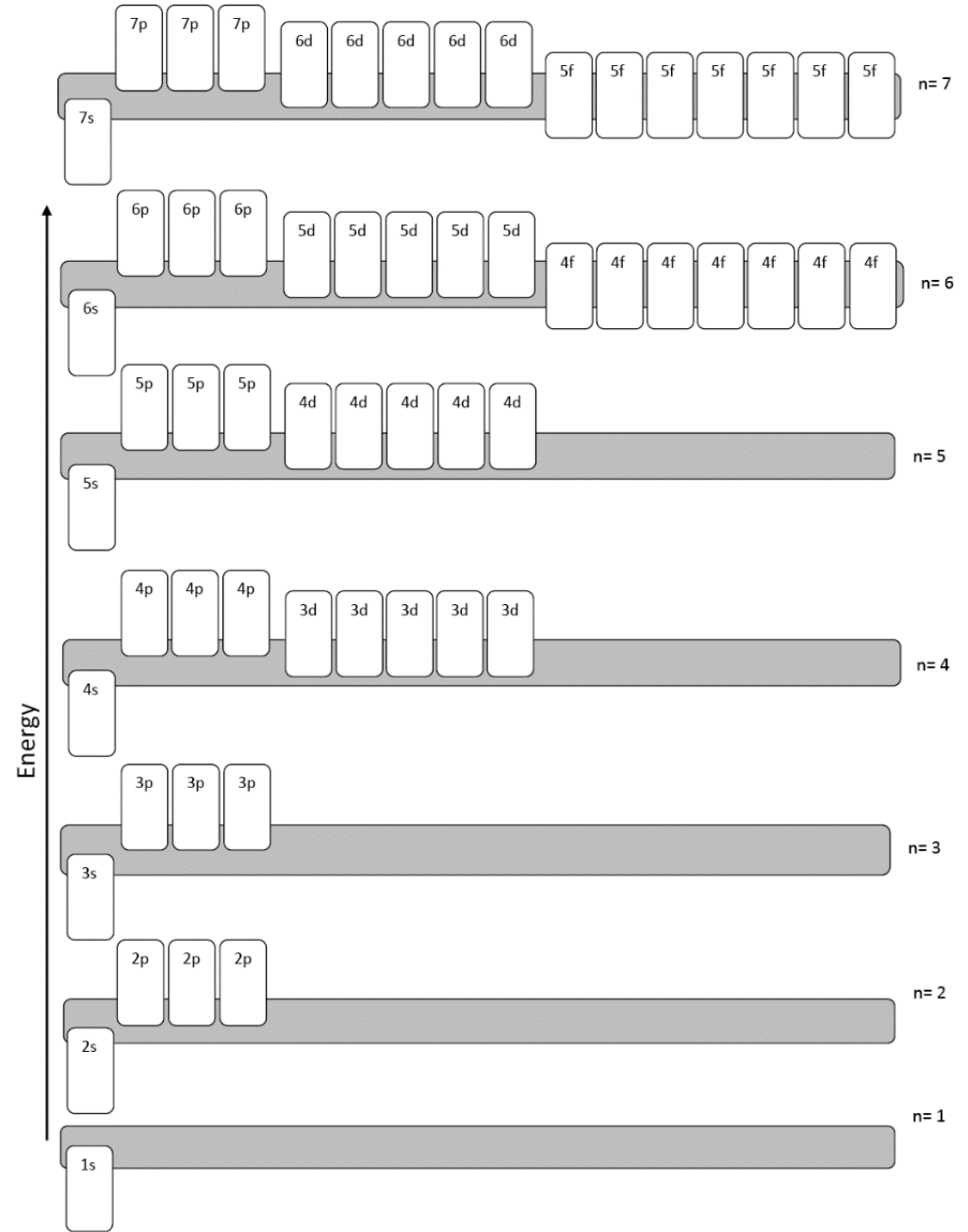
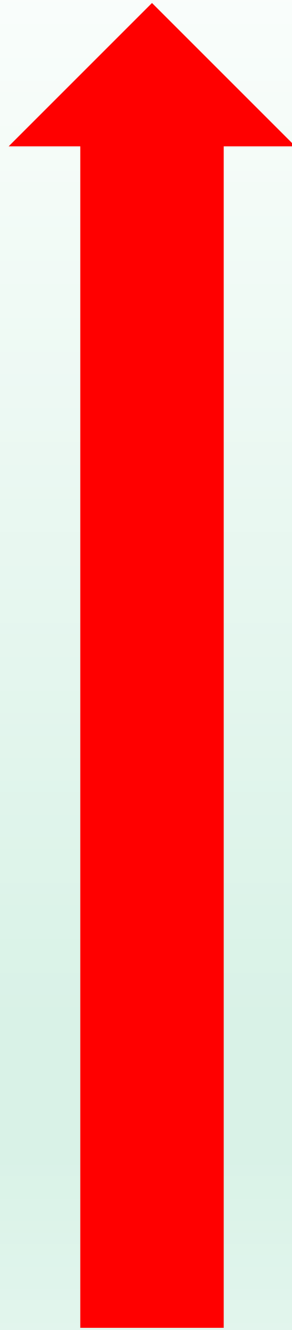


Electron Configuration Rules...

Aufbau Principle:

Electrons fill lowest possible energy level first.

➤ *They are lazy!*

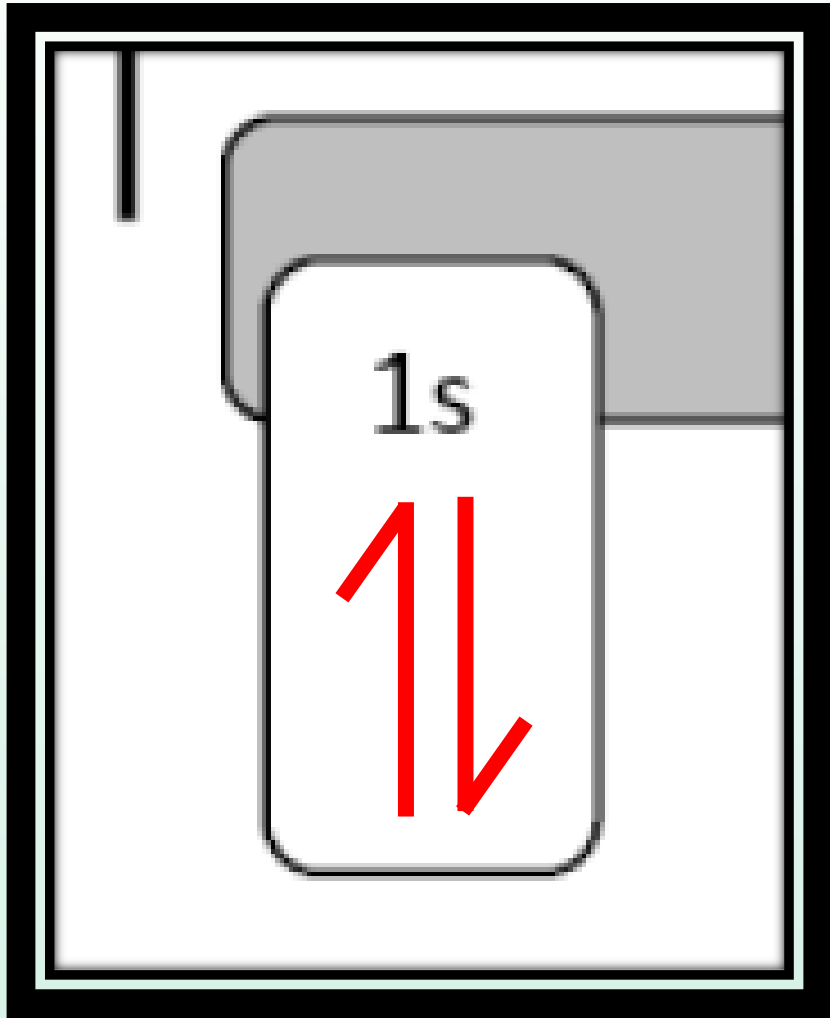
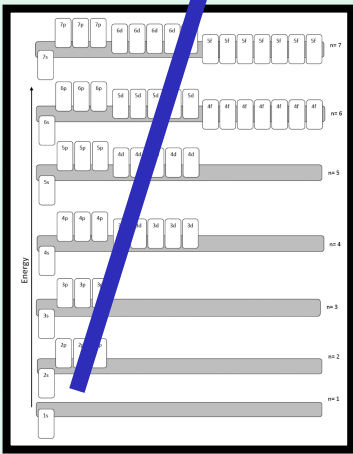


Electron Configuration Rules...

Pauli Exclusion Principle:

No two electrons may have the same set of four quantum numbers.

- *Any single orbital may only contain two electrons, **BUT** one has to be spin up, and one has to be spin down.*



Electron Configuration Rules...

Hund's Rule:

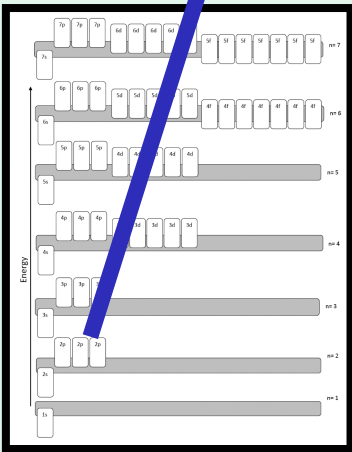
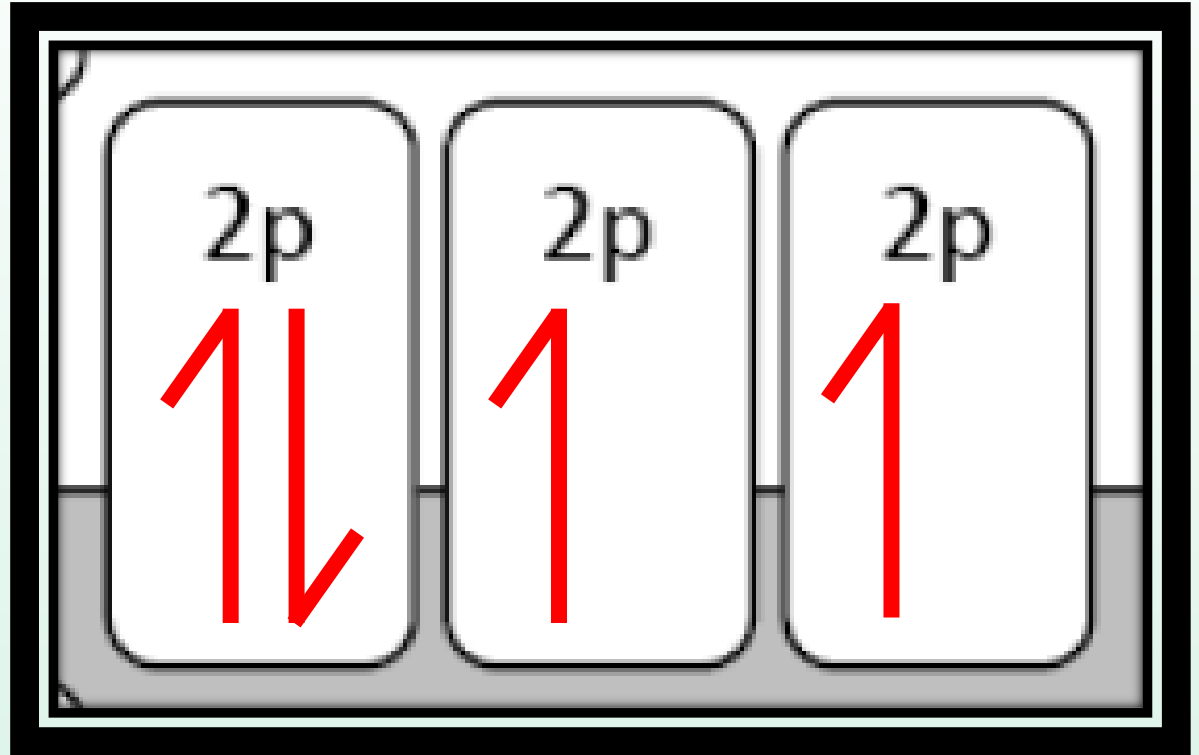
Electrons will fill each equal energy orbital before pairing up

- *Spread them out before you pair them up*
- *“You don't want to share a bedroom with your sibling unless you really have to!”*
- *Electrons want elbow room!*

p_x

p_y

p_z



Steps to finding all the electrons

- 1) Find an **atom** on the periodic table
- 2) Find the number of **electrons it has**
- 3) Start putting electrons into the **orbitals**
Use an **ORBITAL CHART/DIAGRAM**
- 4) List which **orbitals** you used and **how many** electrons in each one

**Let's practice together
under the document
camera!**

(photos on next slides for
those who were absent)



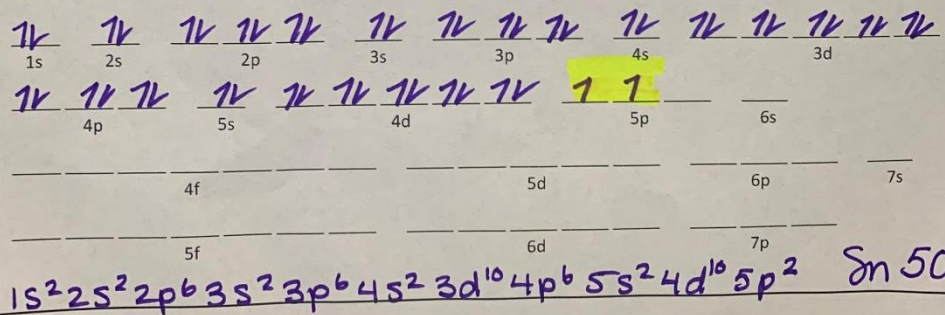
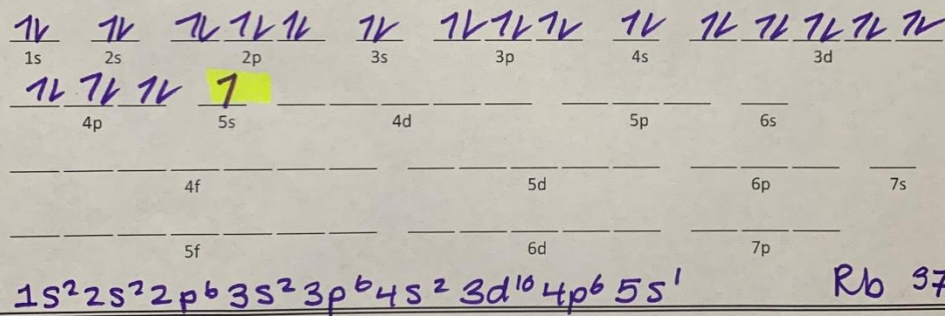
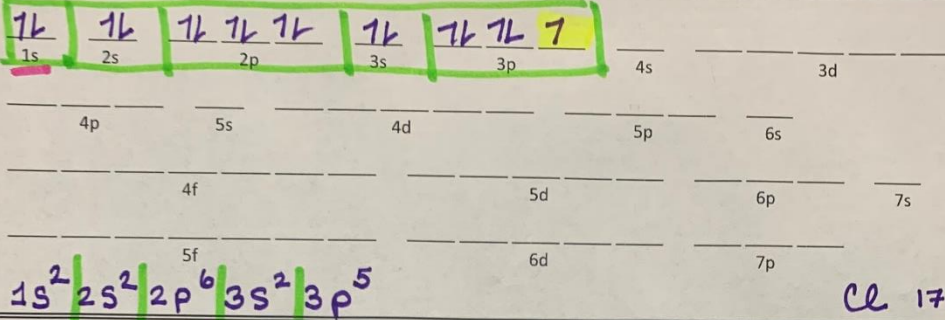
- ① Aufbau
- ② Pauli excl.
- ③ Hunds

* careful to
"zig zag" up
the chart

↳ Always go
lowest to
highest energy

that's not always
the same as
closest to
furthest
distance from
nucleus

Po has 2
unpaired e^-



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