


# ORBITALS

\_\_\_\_\_ are part of what makes an atom an atom



atom ← But where exactly are the electrons inside an atom?

**Orbitals**-are areas within atoms where there is a

\_\_\_\_\_

\_\_\_\_\_

Knowing how electrons are arranged in an atom is **important** because that governs how atoms

\_\_\_\_\_

\_\_\_\_\_

It has been determined where the orbitals are inside an atom, but it is not known precisely where the electrons are inside the orbitals (as described by \_\_\_\_\_)

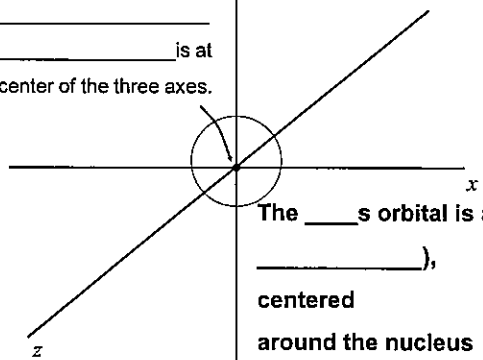
\_\_\_\_\_ )

The area where an electron can be found, \_\_\_\_\_, is defined mathematically, but we can see it as a specific \_\_\_\_\_ in \_\_\_\_\_...

**Types of Orbitals**

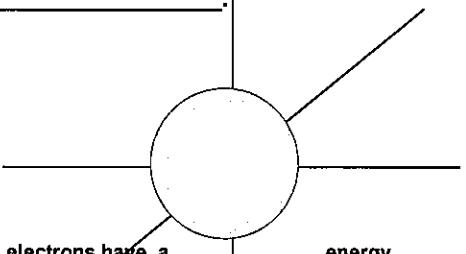
- The \_\_\_\_\_ takes on a shape \_\_\_\_\_
- They are named \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_
- (In order of \_\_\_\_\_.)
- *Memory tip... "Some People Don't Forget."*

For this presentation, the \_\_\_\_\_ is at the center of the three axes.



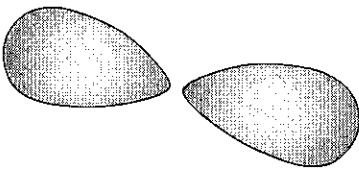
The \_\_\_\_\_s orbital is a \_\_\_\_\_), centered around the nucleus

The \_\_\_\_\_s orbital is also a \_\_\_\_\_.

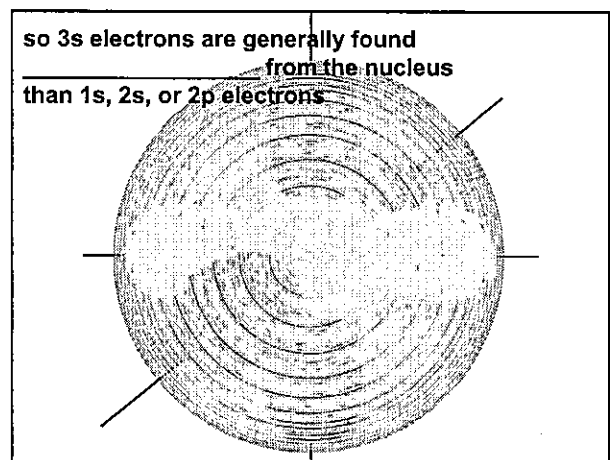
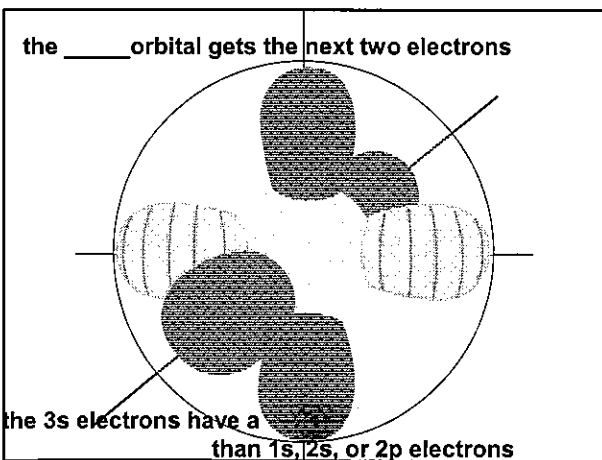
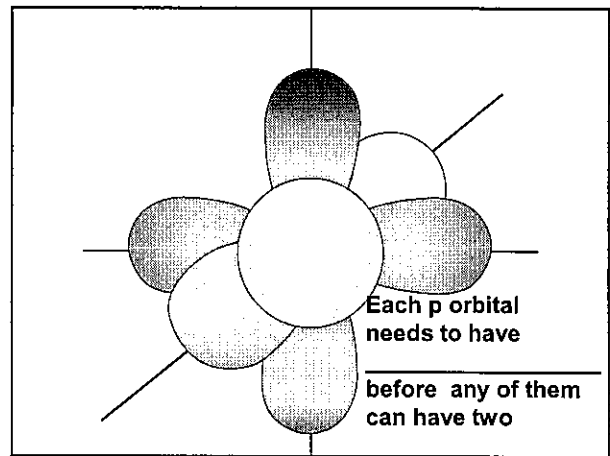
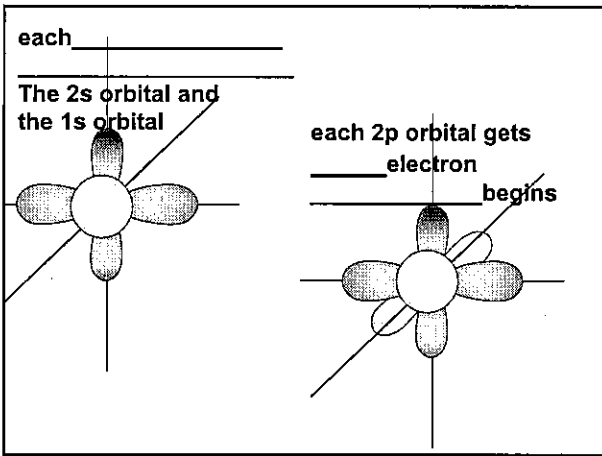
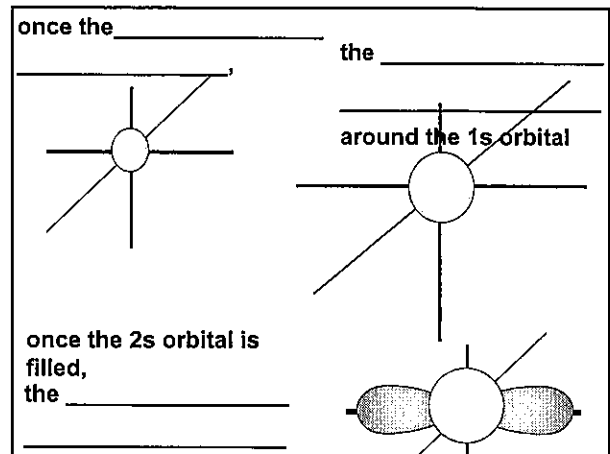
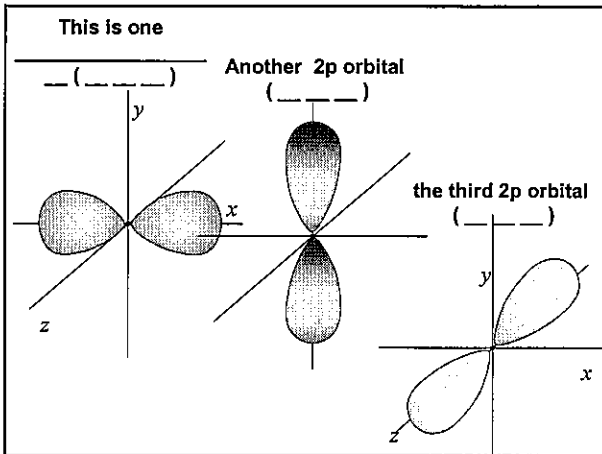


The 2s electrons have a \_\_\_\_\_ energy than the 1s electrons. Therefore, the 2s electrons are generally \_\_\_\_\_ from the nucleus, making the 2s orbital \_\_\_\_\_ than the 1s orbital.

**Don't forget:** an orbital is the shape of the space where there is a high probability of finding electrons



This is the shape of \_\_\_\_\_ orbitals (often described as a \_\_\_\_\_ shape)



**Check your understanding**

1. What is the maximum number of electrons that could be contained in each orbital?

2. An orbital with a "dumbbell" shape is what type of orbital? s, p, d or f

3. The orbitals closer to the nucleus contain electrons with \_\_\_\_\_ (more, less) energy.