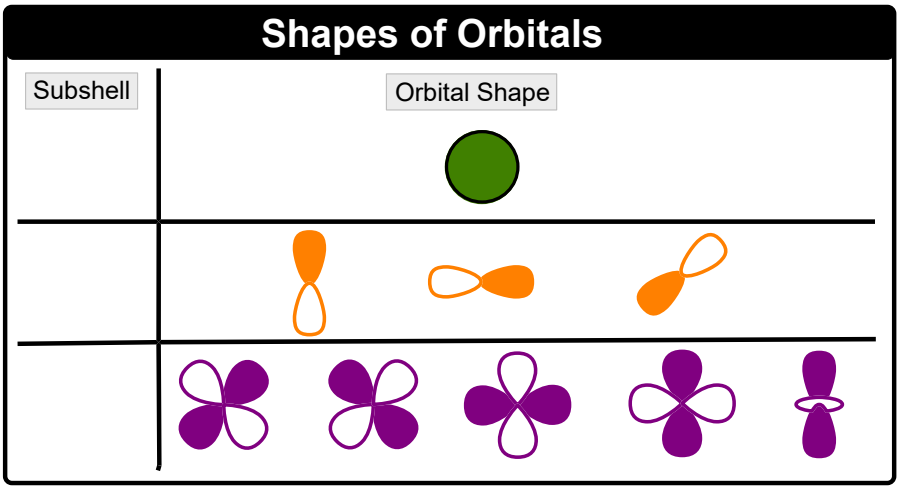
CONCEPT: ELECTRONIC STRUCTURE: ORBITALS

Relationship between subshell and orbital shape

● The sublevel letter gives information on the _____ of the orbitals that electrons occupy.



□ The ____ sublevel letter is ignored because it has the most shapes and is beyond the scope of this course.

EXAMPLE: Based on the following atomic orbital shape, which of the following set of values is correct.

a) *n* = 3, subshell = p

b) *n* = 1, subshell = s

c) *n* = 0, subshell = d

d) *n* = 2, subshell = f

e) *n* = 5, subshell = d

PRACTICE: Which of the following orbitals possesses the most orbital shapes?

a) 2p b) 7s c) 4d d) 5p e) 5f

CONCEPT: ELECTRONIC STRUCTURE: ORBITALS

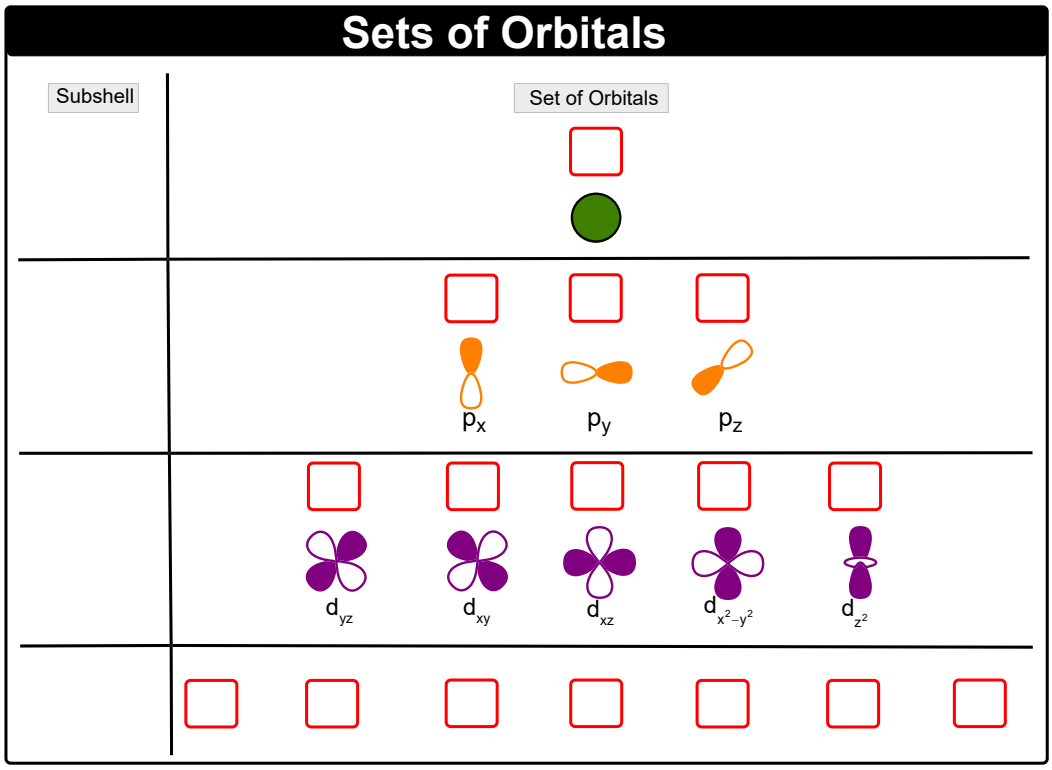
Set of Orbitals

● Recall, an **orbital** is the region within a subshell where *two specific electrons* can be found.

□ **Orbital** = _____ (_____)

EXAMPLE: Provide the identity of a set of orbitals that exist in the 4th energy level and p sublevel.

a) 3f b) 4d c) 4p d) 3d e) 5f



□ Recall, the ____ sublevel letter shapes are beyond the scope of this course.

PRACTICE: Which of the following statements is false?

a) A set of *d* orbitals contains 5 orbitals.

b) A set of 4s orbitals would have more energy than a set of 3p orbitals.

c) A set of 3s orbitals would have less energy than a set of 5p orbitals.

d) A set of *f* orbitals contains 3 orbitals.

e) A set of *p* orbitals contains 1 orbital.