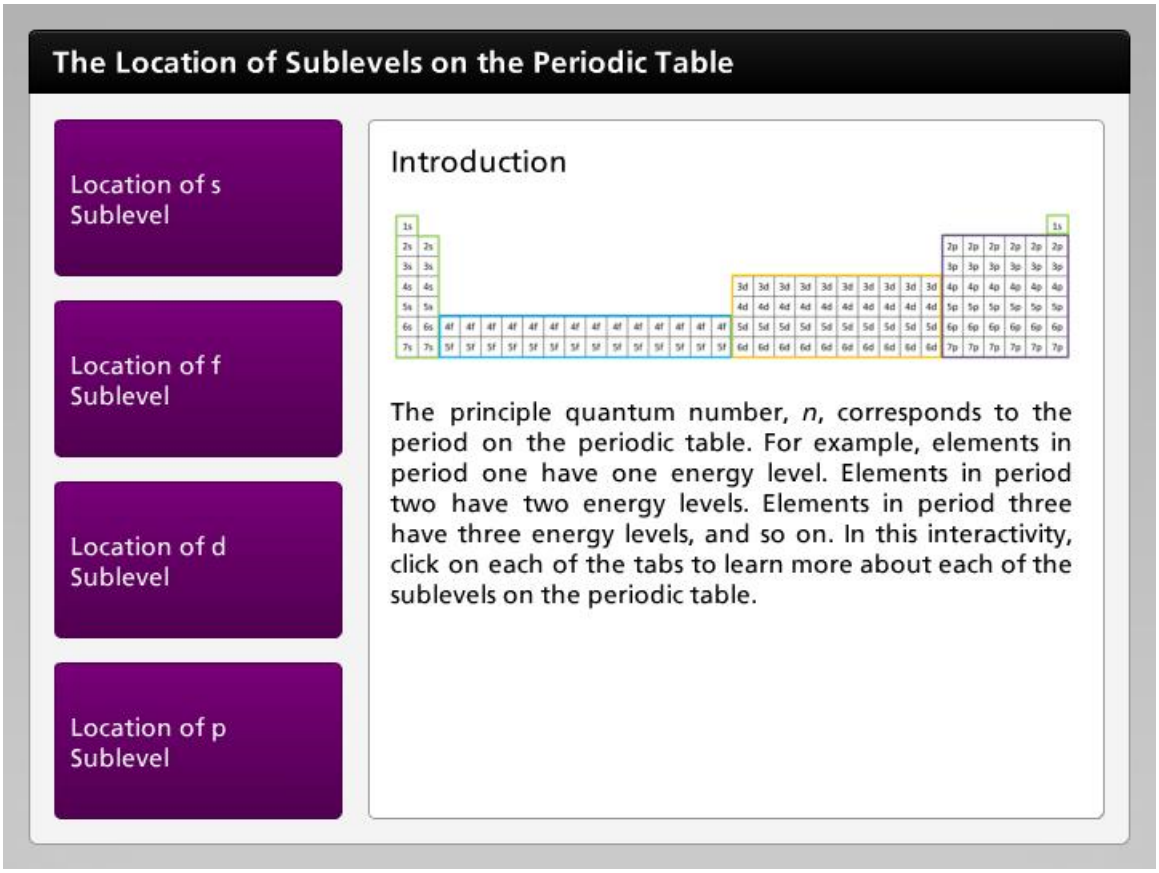
Module 3: Modern Atomic Theory, Electron Structure, and Periodicity

Topic 1 Content: The Location of Sublevels on the Periodic Table Presentation Notes

Introduction



The principle quantum number, *n*, corresponds to the period on the periodic table. For example, elements in period one have one energy level. Elements in period two have two energy levels. Elements in period three have three energy levels, and so on. In this interactivity, click on each of the tabs to learn more about each of the sublevels on the periodic table.

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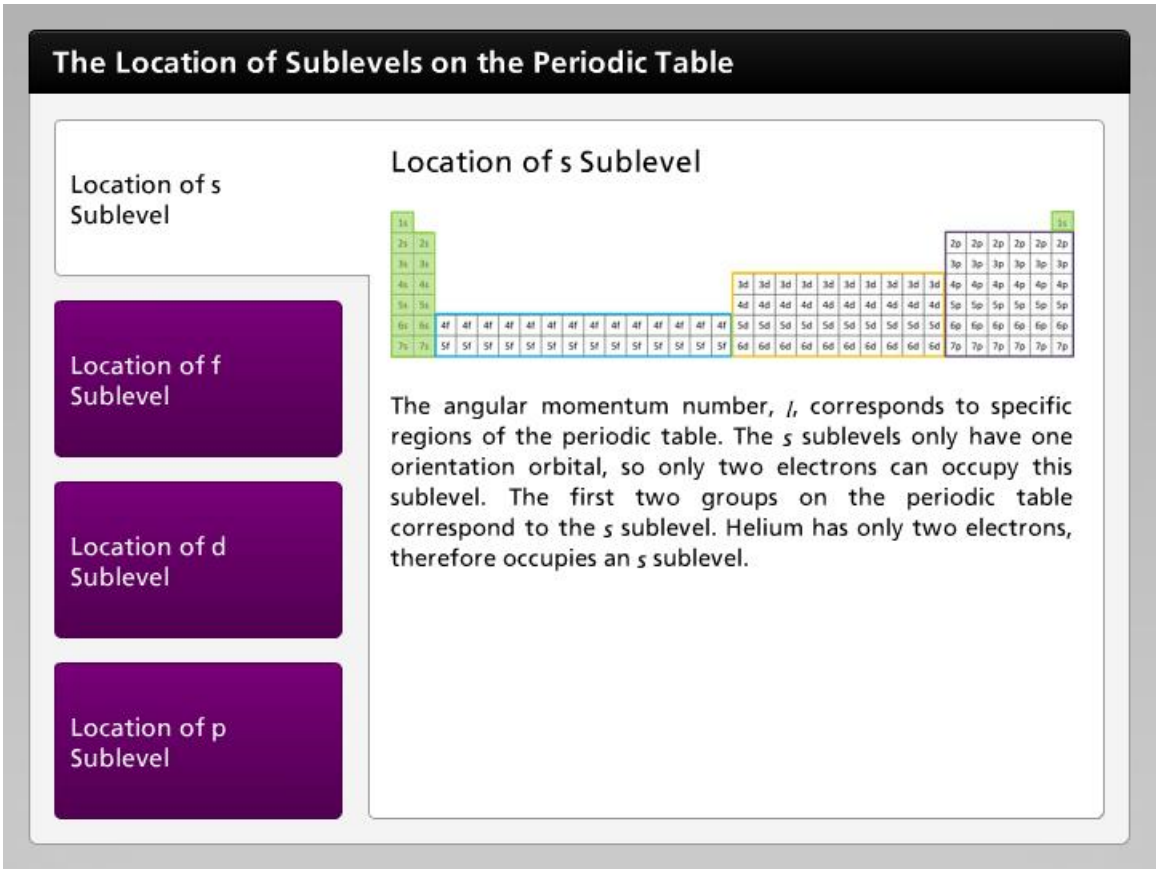
Location of s Sublevel



The angular momentum number, *l*, corresponds to specific regions of the periodic table. The *s* sublevels only have one orientation orbital, so only two electrons can occupy this sublevel. The first two groups on the periodic table correspond to the *s* sublevel. Helium has only two electrons, therefore occupies an *s* sublevel.

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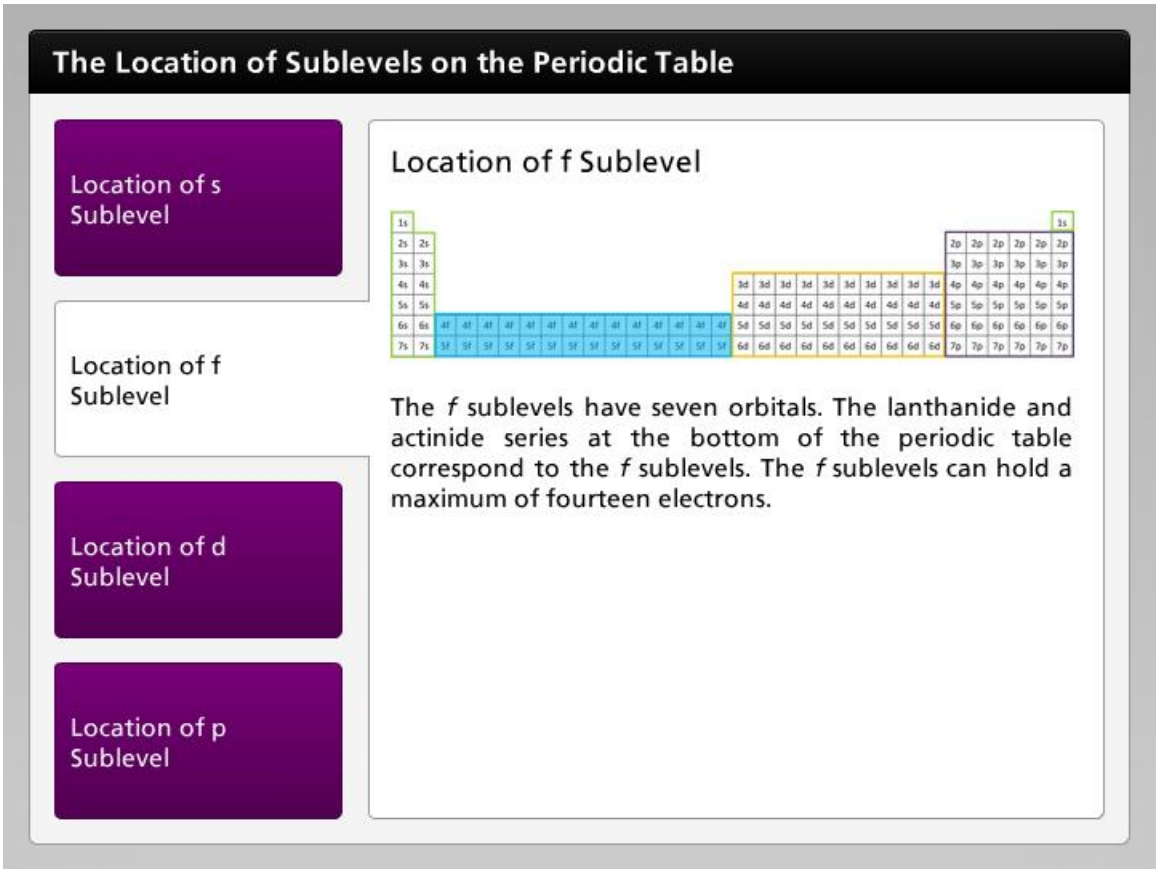
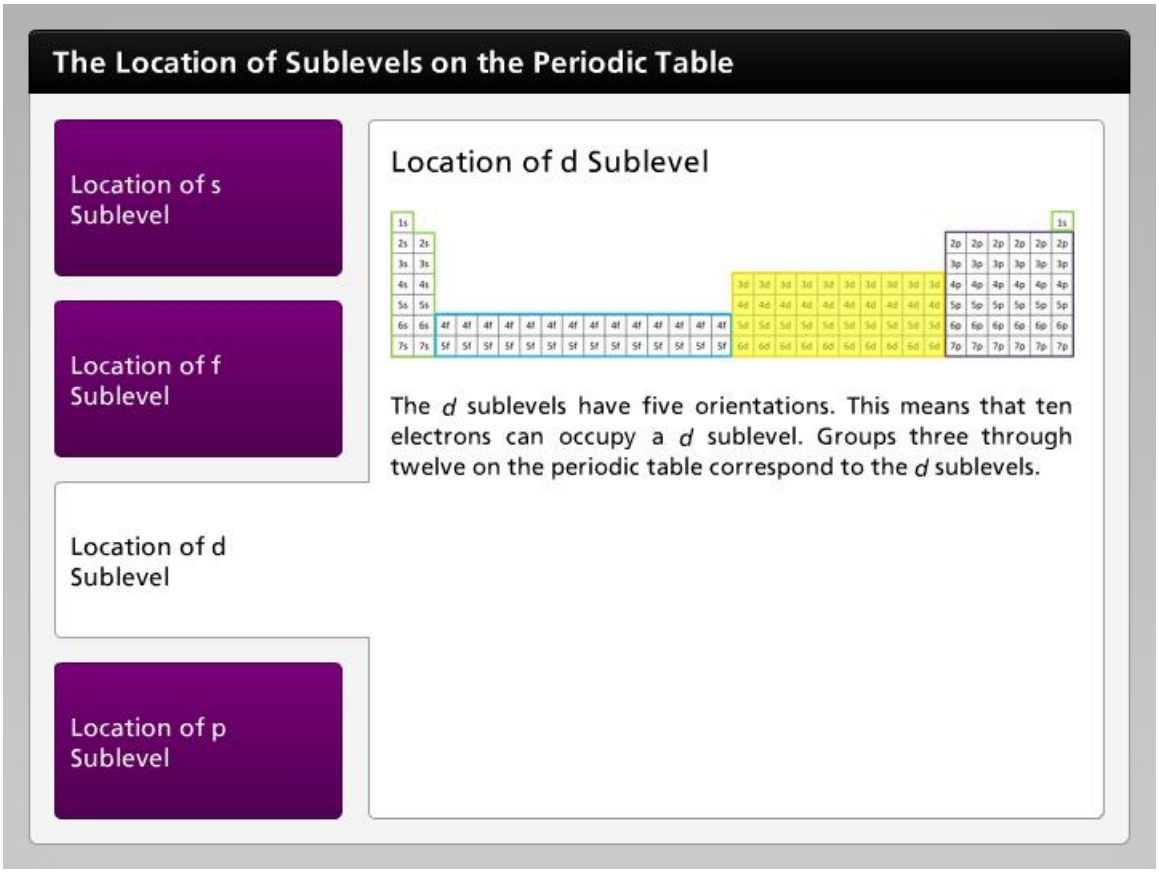
Location of f Sublevel



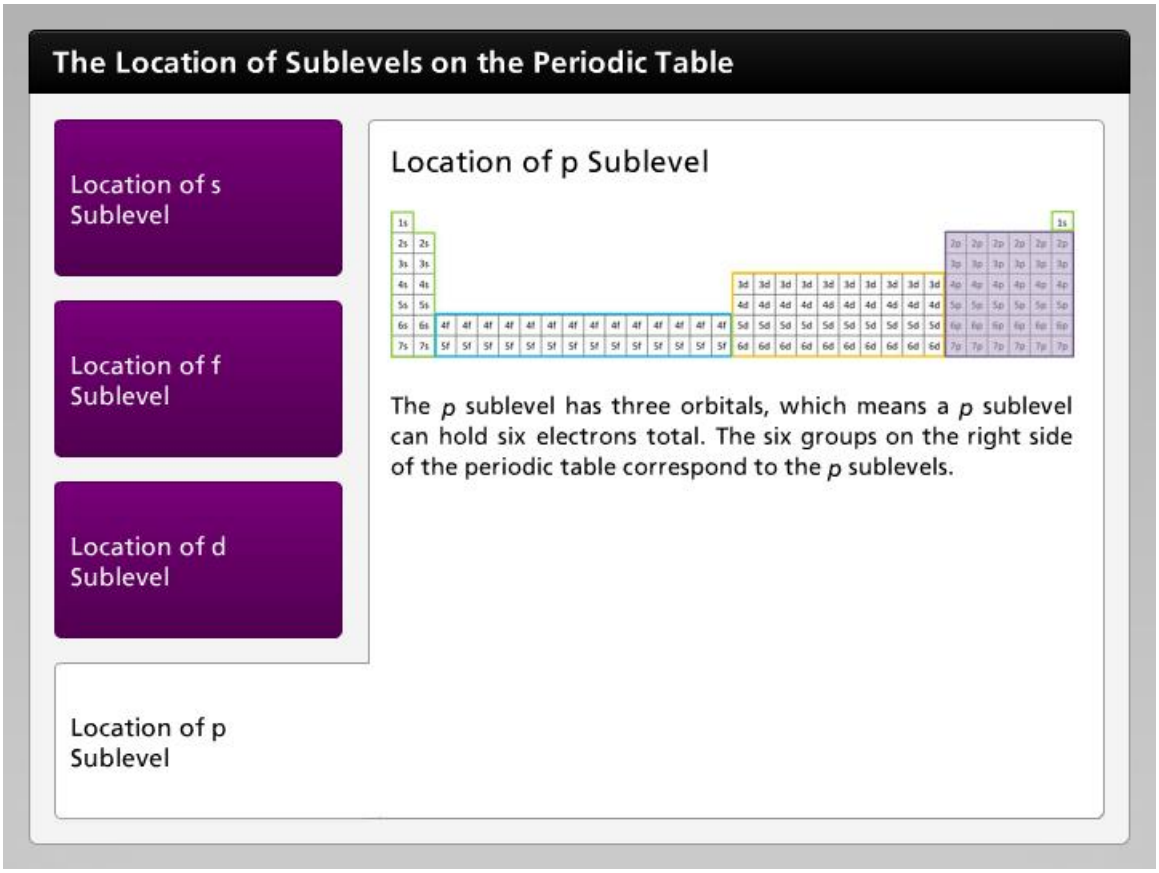
The *f* sublevels have seven orbitals. The lanthanide and actinide series at the bottom of the periodic table correspond to the *f* sublevels. The *f* sublevels can hold a maximum of fourteen electrons.

Location of d Sublevel



The *d* sublevels have five orientations. This means that ten electrons can occupy a *d* sublevel. Groups three through twelve on the periodic table correspond to the *d* sublevels.

Location of p Sublevel



The *p* sublevel has three orbitals, which means a *p* sublevel can hold six electrons total. The six groups on the right side of the periodic table correspond to the *p* sublevels.