



ELECTRON COUNT BADGE

Keep your count straight with one method, otherwise, you'll regret it. Though more of a suggested counting mechanism than a rule, students learn to count the valence electrons of inorganic complexes. The badge features a stable 18 electron ferrocene complex.

How does an electron transfer from one chemical species to another? Take an inorganic chemistry course and you'll find out the two different pathways, the inner- and outer-sphere mechanisms. This badge is represented by three different scenarios of electron transfer pathways.

ELECTRON TRANSFER BADGE



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CRYSTAL FIELD BADGE

The law of attraction. Atoms are represented as point charges, where the blue atoms and the red atom are attracted towards one another. The crystal field theory provided a great start to understanding some properties of transition metal complexes. The crystal field badge is represented by an octahedron cage.

Mirror, mirror in the molecule, what operation should I call you? Inorganic chemistry students are tasked with identifying the point group of inorganic complexes. Group Theory is used to predict vibrational modes, electronic transitions, and more. The badge is represented by an ML_3 molecule in the D_{3h} point group.

SYMMETRY BADGE



COORDINATION BADGE

Coordination chemistry is one of the most fundamental fields of inorganic chemistry. Students learn the various geometries of an inorganic complex. The badge is represented by a complex in an octahedral geometry. Look out for more badges in different coordination geometries to add to your collection.

Empty π^* orbitals ready to be filled, a triple bond ready to be broken. Bring an electron-rich metal close to this carbon monoxide molecule, and watch the magic happen. The badge is represented by a carbon monoxide molecule displaying an anti-bonding molecular orbital.

BACK-BONDING BADGE



CHELATE BADGE

Hold on tight! What better way to stabilize a metal center than to wrap your multidentate ligand around it? Inorganic chemistry students learn the stabilization effects chelating ligands play in transition metal complexes. The badge is represented by a bidentate ligand coordinating to a metal (red circle).

Oh, the reactions you'll do, the compounds you'll make, and the colors you'll see! The wonderful world of inorganic chemistry. With different ligand and transition metal combinations, the whole spectrum of the rainbow is in your hands. This spectrochemical series badge is represented by a color wheel.

SPECTROCHEMICAL BADGE

