

## CHAPTER OVERVIEW

### 19: Transition Metals and Coordination Chemistry

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OpenStax's textbook:  
***General Chemistry***

Transition metals are defined as those elements that have (or readily form) partially filled  $d$  orbitals. These include the  $d$ -block (groups 3–11) and  $f$ -block element elements. The variety of properties exhibited by transition metals is due to their complex valence shells. Unlike most main group metals where one oxidation state is normally observed, the valence shell structure of transition metals means that they usually occur in several different stable oxidation states. In addition, electron transitions in these elements can correspond with absorption of photons in the visible electromagnetic spectrum, leading to colored compounds. Because of these behaviors, transition metals exhibit a rich and fascinating chemistry.

[19.1: Properties of Transition Metals and Their Compounds](#)

[19.2: Coordination Chemistry of Transition Metals](#)

[19.3: Optical and Magnetic Properties of Coordination Compounds](#)

[19.E: Transition Metals and Coordination Chemistry \(Exercises\)](#)

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