

**Electron configurations: exercises**

Atom Ion	Nucleus			Z	A	Electron configuration		Lewis
	# p+	# n <sup>0</sup>	# e <sup>-</sup>			Shorthand notation	Orbital diagram	
${}_{9}^{19}\text{F}$							<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">1s</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">2s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">2p</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">3s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3p</div> <div style="border: 1px solid black; width: 60px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3d</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">4s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">4p</div> </div>	
${}_{15}^{\square}\text{P}$		16					<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">1s</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">2s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">2p</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">3s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3p</div> <div style="border: 1px solid black; width: 60px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3d</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">4s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">4p</div> </div>	
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${}_{13}^{27}\text{Al}^{3+}$							<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">1s</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">2s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">2p</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">3s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3p</div> <div style="border: 1px solid black; width: 60px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3d</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">4s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">4p</div> </div>	
${}_{17}^{35}\text{Cl}^{-}$							<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">1s</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">2s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">2p</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">3s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3p</div> <div style="border: 1px solid black; width: 60px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3d</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">4s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">4p</div> </div>	
${}_{20}^{40}\text{Ca}^{2+}$							<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">1s</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">2s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">2p</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">3s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3p</div> <div style="border: 1px solid black; width: 60px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3d</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">4s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">4p</div> </div>	
${}_{16}^{\square}\text{S}^{2-}$		18					<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">1s</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">2s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">2p</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">3s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3p</div> <div style="border: 1px solid black; width: 60px; height: 20px; display: flex; justify-content: space-around; align-items: center;">3d</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">4s</div> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; justify-content: space-around; align-items: center;">4p</div> </div>	