

Period Trends

4(4B)

<u>4</u>	Ti	Down group ↓
<u>5</u>	Zr	
<u>6</u>	Hf	



(what happens "down" a group,
same group, inc. period)

Atomic Size
IE
EA
Electroneg

<u>small</u>	<u>increase</u> →	<u>large</u>
Ti	Zr	Hf
Hf	Zr	Ti
Hf	Zr	Ti
Hf	Zr	Ti

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Group Trends



(what happens "across" a period
same period, inc. group)

	<u>3B</u>	<u>4B</u>	<u>5B</u>
4	Sc	Ti	V
	→ across period		

Atomic Size
IE
EA
Electroneg

<u>small</u>	<u>increase</u> →	<u>large</u>
V	Ti	Sc
Sc	Ti	V
Sc	Ti	V
Sc	Ti	V

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Ion Trends

Ti	Ti $4+$
larger	smaller
N	N $3-$
smaller	larger

Mn $3+$	Tc $3+$
smaller	larger

(same group)

Cation (+, lose e^-)
Anion (-, gain e^-)

	<u>Neutral</u>	<u>Ion</u>
Cation (+)	larger	smaller
Anion (-)	smaller	larger

Ions follow same IE, EA, electroneg. relative size as neutral