

CONCEPT: ELECTRON CONFIGURATIONS OF TRANSITION METALS: EXCEPTIONS

Exceptions (I)

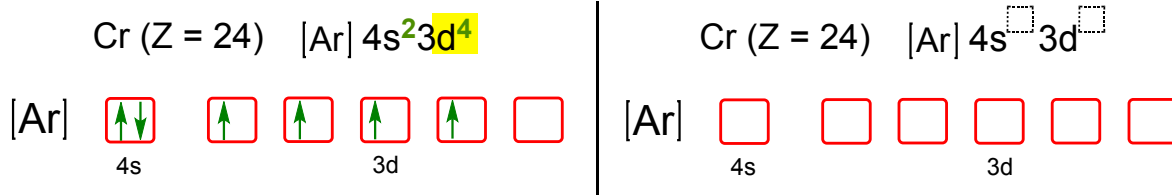
- Starting from chromium, as the atomic number (Z) _____, **exceptions** to electron configurations can be observed.

MEMORY TOOL Chromium (Z = **24**) and there are **2** and **4**. To get to the other column remember **2** skip next **4**.

□ All have ____ electron in ns orbital.

	3B	4B	5B	6B	7B	8B			1B	2B
	3	4	5	6	7	8	9	10	11	12
Period 4	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn
Period 5	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd
Period 6	57 La	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg
Period 7	89 Ac	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn

- An s orbital electron can be promoted to create half-filled orbitals with ____ or ____ - elements.



EXAMPLE: Write the condensed electron configuration of the following ion:

Ag⁺ (Z = 47)

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PRACTICE: Provide a condensed electron configuration for Au atom and Au (III) ion.

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Exceptions (II)

- Additional exceptions to the electron configuration are observed in Period ____.

MEMORY TOOL 5 ate (8) B

- All have ____ electron in 5s orbital, **except** for ____ which has ____ electrons in 5s.

	3B	4B	5B	6B	7B	8B			1B	2B
	3	4	5	6	7	8	9	10	11	12
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- 5s orbital electron(s) is/are promoted to a ____ orbital.

