# Quantum Model of the Atom

decrease



### Across

- 1. Bohr's model works mathematically with any atom that has just one
- 7. The Bohr model was developed to explain the \_\_\_\_\_ of hydrogen
- 9. When an electron absorbs energy and jumps to a higher energy level, the atom is now in an \_\_\_\_ state
- 11. Einstein used Planck's quantum model of energy to explain the \_\_\_\_ effect
- 12. An \_\_\_\_\_ uses boxes with arrows in them to depict electrons arranged in sublevels within an atom
- 13. Ground state atoms in the alkaline earth family and in the noble gas family are \_\_\_\_ - because their electrons are all paired up
- 14. \_\_\_\_ electron spectroscopy (PES)
- 17. The exclusion principle leads to there being a maximum of two electrons, with opposite spins, to fill an \_\_\_\_
- 18. When energy is \_\_\_\_ by an atom, excited electrons fall back to lower energy levels
- 20. The rainbow is an example of a \_\_\_\_ spectrum

- 21. The \_\_\_\_ uncertainty principle
- 26. Nitrogen atoms see a relatively large jump after the 5th \_\_\_\_\_ ionization energy
- 27. Wavelength and frequency are \_\_\_\_ proportional
- 28. Atoms of this element have the greatest electronegativity
- 31. Energy and frequency are \_\_\_\_ proportional
- \_\_\_ state of an atom has all its 34. The electrons in their lowest possible energy levels
- 35. 1s<sup>2</sup>2s<sup>2</sup>2p63s<sup>2</sup>3p5 is the electron configuration for ground state \_\_\_\_ atoms
- 37. The colour in the visible spectrum with the shortest wavelengths
- 38. Atoms of this element have the second highest electronegativity
- 39. The uncertainty principle says it's impossible to measure BOTH the and the momentum of an electron

Down		
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1.	To classify a chemical bond, look at the difference in	
2.	The exclusion principle	
J.	consecutive crests on a wave	
4.	3 unpaired electrons	
5.	This alkali metal cation produces a yellow flame test	
6.	The electron for helium is just "1s <sup>2</sup> "	
8.	The bond between gallium and chlorine atoms is classified as	
10.	As you move down a group on the periodic table, first	
15.	The form of electromagnetic radiation with the lowest	
16.	frequencies The number of crests on a wave that pass a given point in	
19.	one second The element whose ground state Noble gas abbreviated	
22.	coniguration is: [Ar] 4s <sup>1</sup> 3d4 The electron is best thought of as having a wave dual	
23.	According to Hund's rule, electrons should be maximized	
24.	This transition meal cation	
25.	The principle leads us to fill up the lowest energy level with electrons in an atom and then "build up" to bigher levels	
29.	An example of a nonpolar covalent bond is the bond between carbon and, very common in organic molecules	
30.	The configuration for magnesium is "3s <sup>2</sup> "	
32.	The element in period 3 whose	
33.	The alkali metal with the largest	
36.	As you move across a on the periodic table. atomic radii	

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