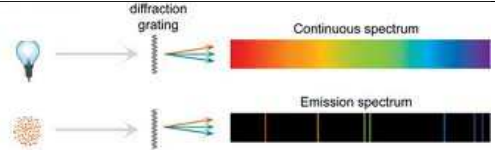
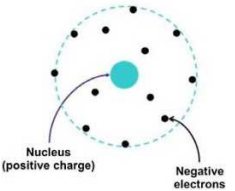
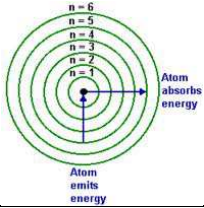
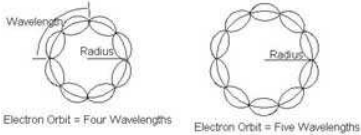


Chemistry History II – Quantum Mechanics

Scientist	Experiment or Model	Key Points	Secondary Points
Huygens	Wave Theory of Light	<ul style="list-style-type: none"> First to propose wave theory of light 	<ul style="list-style-type: none"> Big debate on whether light is a wave or particle. Light model is winning 
Newton	Particle Theory of Light	<ul style="list-style-type: none"> First to propose particle theory of light 	
Angstrom	Line Spectra	<ul style="list-style-type: none"> Light emitted from atoms is discrete (lines) Not continuous like normal light 	
Planck	Black Body Radiation	<ul style="list-style-type: none"> Classical Model fails Light is quantized (like a particle) 	Two experiments that contradict the current (wave) model for light
Einstein	Photoelectric effect	<ul style="list-style-type: none"> Classical Model fails Light is quantized (like a particle) 	
Rutherford	Rutherford Model 	<ul style="list-style-type: none"> Predicts continuous spectra of light Can't explain line spectra 	Electrons can be anywhere therefore atomic spectra should be continuous
Bohr	Bohr Model 	<ul style="list-style-type: none"> Electrons are in orbits Explains line spectra Can't explain why quantized Fails for > 1e 	Because electrons are only allowed in specific orbitals, only specific colors of light would be emitted.
De Broglie	Wave-Particle Duality 	<ul style="list-style-type: none"> Explained why electrons are in orbitals (because only certain wavelengths are allowed) "If light can behave like a wave and a particle than an electron can behave like a particle and light" Fails for > 1e 	
Heisenberg	Heisenberg Uncertainty Principle	<ul style="list-style-type: none"> Can't know momentum and position with absolute certainty Electrons orbitals would be larger than the size of an atom therefore orbitals should not exist. 	
Schrodinger	Quantum Mechanics	<ul style="list-style-type: none"> Derived mathematics to describe electrons Fixed Heisenberg's problems 	
Pauli	Pauli Exclusion Principle	<ul style="list-style-type: none"> No two electrons can have the same 4 QN's 	
Hund	Hund's Rule	<ul style="list-style-type: none"> Electrons in degenerate orbitals don't pair up until they have too Electrons in degenerate orbitals are spin aligned 	