**Modern Atomic Theory Chapter 5**

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**See** [**https://www.learningctronline.com/courses**](https://www.learningctronline.com/courses) **for Materials and Resources.**

**Topics:**

1. Modern Atomic Theory: Electrons in Atoms

**Objectives:**

1. Describe contributions to the revised atomic theory (Bohr, DeBroglie, Shroedinger, Heisenberg, wave-particle duality, Photoelectric effect, Absorption & Emission Spectra)
2. Explain and calculate the relationship of wavelength, frequency and energy of emitted light related to changes in electron energies.
3. Understand Quantum Mechanics model of the atom and write electron configurations of elements. Give the 4 quantum numbers of elements 1 -11.

TAKE NOTE

1. Notes / Study Guide (1 week)
2. Lesson Check/Sample problems or Alternative Worksheets (1 week)
3. Lab Quiz Flame Tests (open notes)
4. Atomic Structure & Modern Atomic Theory Test
5. Week 7 Devotional (<https://www.learningctronline.com/devotional>)

**Text**: Chapter 5: Modern Atomic Theory pp. 126-157

Read the assigned pages in the text.

**Class Notes: PowerPoint or PDF**

**Notes/Study Guide:** Fill in the Chapter 5 worksheet to understand the class notes.

**Homework**: TEXT

(1) Answer the KEYED **"Lesson Check"** questions at the end of each of the chapter.

(2) Answer the **"Sample problems"** found in the "Sample Problem" boxes throughout the chapter. An answer KEY is provided for you to use to self-correct your homework problems.

* Put your answers into complete thoughts in a Word document. Do NOT just put the answer, but write a phrase or sentence that you can study from for your tests. Save your work in a WORD document and SAVE into your HOMEWORK folder in the Chemistry folder on the desktop.
* Assignments will be “spot checked” during class or submitted via email.

**Alternate Homework**:

1. Modern Atomic Theory Review Worksheet
2. Modern Atomic Theory Crossword Review (Vocabulary)

**Lab**: Flame Tests

* Download the Flame Tests Lab worksheet and complete it while watching the "Flame Tests Lab Video". You may also need to use class notes for some questions.

[Flame Tests Lab Video](http://somup.com/cqe2bonZ5o) (4:34)
* After completing the Flame Tests Lab worksheet, you will take a Lab Quiz worth 20 points (2 points per question). **You MAY use the worksheet on the quiz, but no other resources.**
* There is a **20-minute time limit** on this Lab Quiz.
* When ready take the Lab Quiz.

**TEST:** Atomic Structure & Modern Atomic Theory

1) the academic integrity policy

* Tests must be completed **WITHOUT** referring to books, notes, the internet, people, or any outside resources.
* Students **MAY** use the approved Periodic Tables, approved Reference Tables, or approved equation (formula) sheet (provided by the teacher) along with calculators and scratch paper.
* A guardian should be proctoring the test. Proctoring means to monitor the following:

2) The test is composed of 20 multiple choice questions and some written problems.

* The **multiple-choice test must be taken "in one sitting"**, meaning that once you start the test, you must complete it without interruption. (40 minutes)
* Take a short break (5-10 minutes)
* The **written portion of the test must be taken "in one sitting"**, meaning that once you start the test, you must complete it without interruption. (30 minutes)

3) There is a **70-minute time limit** on this test. Please have the proctor write the time taken at the top of your answer sheet with their signature or initials.

4) Proctors should NOT be reading the test or engaging students during the test.

5) Do NOT use RED font. Black font is best.

Supplemental Resources (Optional)

1. PHET Simulation (Atomic Models) … same as last week.
2. Vocabulary Crossword Review
3. Chapter 5 Study Guide Pearson

[**PHET Simulation: Atomic Model History**](http://screencast-o-matic.com/watch/cD6ZXZj5Ma)**(5:37)**
[**Electron Configuration (Review) Song**](https://screencast-o-matic.com/watch/cq6nYuuIbb)**(3:24)**
[Introduction to Quantum Numbers / Electron Configuration ctr](http://somup.com/cFQX3uVS05) (4:38)

[**Quantum Numbers Made Easy ctr**](http://somup.com/cY6QDZlUHR)**(11:22)**
[Principal Quantum Number: Energy Levels (Size ... n) ctr](http://somup.com/cFQ2oYVS7T) (5:12)

[Second Quantum Number: Sublevels (Shape) ctr](http://somup.com/cFQ2DZVSsb) (5:22)

[Recap of Quantum Numbers 1 & 2 ctr](http://somup.com/cFQ2FRVSLt) (2:36)

[Third Quantum Number: Orbitals ctr](http://somup.com/cFQ2YOVSNt) (6:25)

[Fourth Quantum Number: Spin ctr](http://somup.com/cFQol4VS9t) (4:57)

[Energetics of Quantum Numbers ctr](http://somup.com/cFQoolVS98) (4:51) ... discusses all 4 quantum numbers with energy in view

[Pauli Exclusion Principle & Hund's Rule ctr](http://somup.com/cFQ2bjVSsN) (4:41)

[Diagonal Rule & Electron Configuration Example ctr](http://somup.com/cF6lFQnef7) (3:06) Enrichment / Optional

[**http://somup.com/crjT2YriIi**](http://somup.com/crjT2YriIi) **Uncertainty Principle with Pennies (1:28)**
[Work as to the Lord Colossians 3:23; Caught in the Middle](http://somup.com/cYhIoCjrKq) (5:06)