

# ATOMS

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## Overview Sheet

### Essential Question

How is matter structured?

### Vocabulary

atom	proton	neutron	electron
isotope	ion	atomic number	quark
gravitational force	mass number	strong force	weak force
atomic mass unit (AMU)	atomic mass	electromagnetic force	

### Objectives

1. Identify the significance of atoms
2. Describe the structure of an atom
3. Compare and contrast the characteristics of protons, neutrons, and electrons
4. Describe a quark
5. Explain and identify isotopes of the same element
6. Explain what an ion is and how it is created
7. Describe the different forces (gravitational, electromagnetic, strong, weak) that hold together the different parts of an atom
8. Explain how mass numbers and atomic numbers can help determine the number of subatomic particles

### Helpful Websites

- [http://www.chem4kids.com/files/atom\\_intro.html](http://www.chem4kids.com/files/atom_intro.html) (overview)
- <http://education.jlab.org/atomtour/> (overview)
- [http://nobelprize.org/educational\\_games/physics/matter/](http://nobelprize.org/educational_games/physics/matter/) (overview)
- <http://www.crocodile-clips.com/absorb/AC4/sample/LR302.html> (interactive overview)
- <http://particleadventure.org/> (interactive overview)
- <http://www.schoolforchampions.com/science/atom.htm> (overview)
- <http://ippex.pppl.gov/interactive/matter/elements.html> (interactive atom)
- <http://www.miamisci.org/af/sln/phantom/spectroscope.html> (atom animation)
- <http://www.pbs.org/wgbh/aso/tryit/atom/#> (atom builder)
- <http://www.tcd.ie/Physics/Schools/what/quarks.html> (quarks)

More on back 

- <http://www.youtube.com/watch?v=SMgi2j9Ks9k> (quarks video)
- <http://www.bnl.gov/rhic/primer.htm> (sub-atomic particles +size comparisons)
- <http://www.colorado.edu/physics/2000/isotopes/> (isotopes)
- <http://web.jjay.cuny.edu/~acarpi/NSC/index.htm> (click on atomic structure link)
- <http://spaceplace.jpl.nasa.gov/en/kids/balloon.shtml> (ions)
- [http://education.jlab.org/qa/pen\\_number.html](http://education.jlab.org/qa/pen_number.html) (how to determine the # of p, n, e<sup>-</sup>)
- <http://songsforteaching.com/ticketunetyphoon/atommatter.htm> (song)
- [http://www.chem4kids.com/extras/quiz\\_atomintro/index.html](http://www.chem4kids.com/extras/quiz_atomintro/index.html) (quiz)
- <http://www.mcwdn.org/Physics/AtomicQuiz.html> (quiz)
- <http://chemistry.about.com/library/weekly/blatomquiz.htm> (quiz)
- <http://www.quia.com/quiz/646062.html> (quiz)
- <http://www.funtrivia.com/trivia-quiz/SciTech/Structure-of-an-Atom-178048.html> (quiz)