

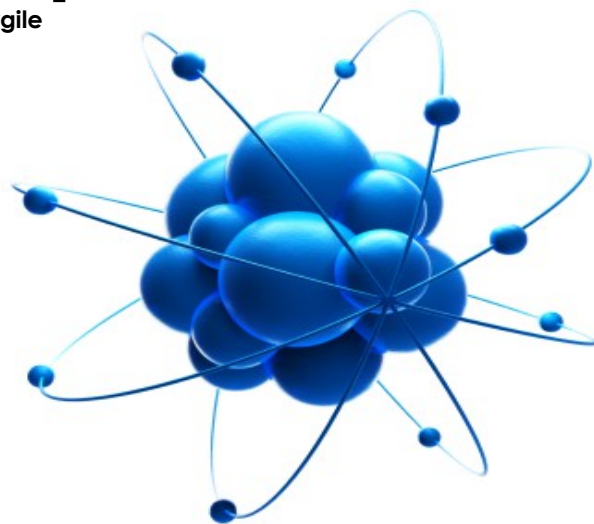
Name: _____

An Atom Apart

by Leslie Cargile

Have you ever walked through a cloud of gnats on a hot summer day, only to have them follow you? No matter how you swat at them, or even if you run, they won't leave you alone. If so, then you have something in common with an atom.

Atoms are the building blocks of molecules, which when combined, make up everything. From the smallest one-celled amoeba, to every person who has ever lived, to the largest and brightest stars in the sky, atoms are everywhere.



Protons and neutrons make up the nucleus of the atom. A cloud of electrons orbits the nucleus.



Preview

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Technically we can't see individual atoms, since there are no microscopes powerful enough. Since technology improves all the time, it may not be long before we can actually see a whole atom through a special microscope. Even though scientists cannot see atoms with microscopes, they have developed ways to detect them and learn about them.

Atoms are made up of three basic parts; protons, neutrons, and electrons. There is a core, or *nucleus*, and an electron cloud. The nucleus is made up of positively charged protons and neutral neutrons. The nucleus is held closely together by *electromagnetic force*.

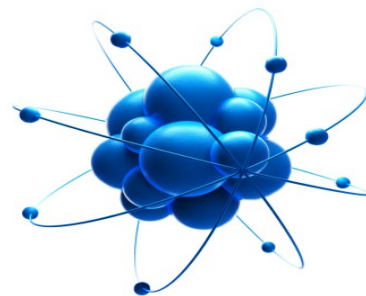
hydrogen. All of the elements known to man so far can be found on the periodic table. The number of protons an atom has decides the chemical element. The number of electrons defines the atom's chemical properties, like its melting temperature and boiling point.

The study of atoms and tiny particles that are even smaller is called quantum mechanics. Scientists still have much to learn about atoms. Maybe you will enter the study of quantum mechanics and find a brand new element. Maybe they'll even name it after you!

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1. What are atoms?
- a. tiny particles that make up all matter
 - b. tiny particles that can only be seen with a microscope
 - c. tiny particles that look like gnats
 - d. particles that are so large they cannot be seen

2. What does the word A'tomos mean in ancient Greece?

3. Complete the graphic organizer.





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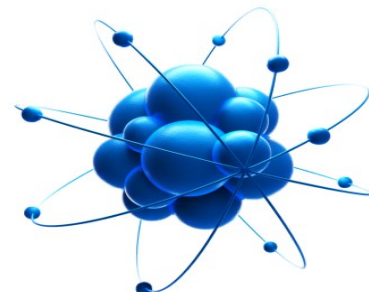
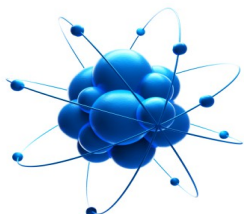
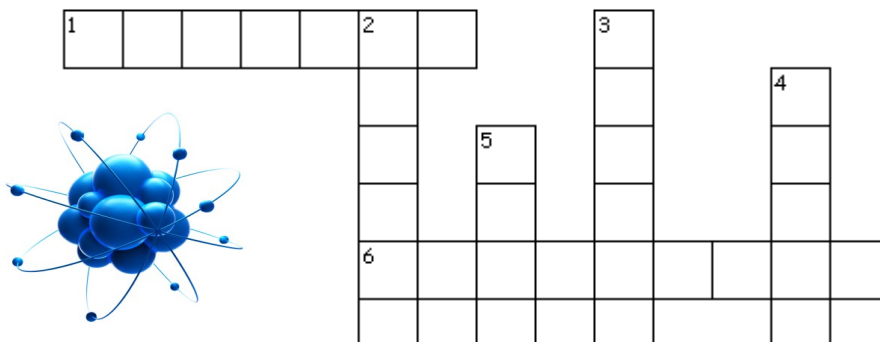
5. If you wanted to find the chemical element of an atom, you would need to...
- a. know how many electrons it has
 - b. know how many protons it has
 - c. know its melting temperature
 - d. see it with a microscope
6. The author begins this article by comparing a cloud of gnats to an atom. In this scenario, what do the gnats represent? What does the person walking through the gnats represent?

Something to Think About: If you discovered a new element that was added to the periodic table, what would you name it?

Name: _____

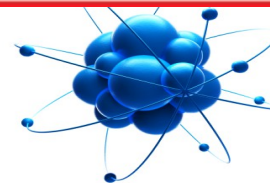
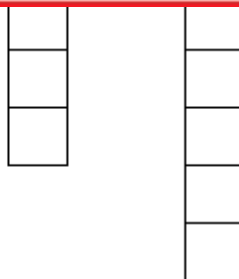
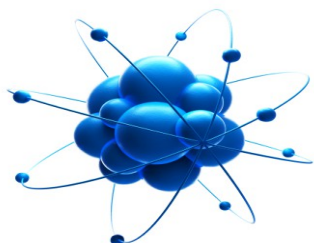
An Atom Apart

Vocabulary Crossword



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Across

1. positively charged parts of an atom
6. negatively charged parts of an atom
7. atoms are the building blocks for...
8. the number of electrons in atoms determine an element's ___ properties
9. neutrally charged parts of an atom
10. a chart which lists all of the known elements

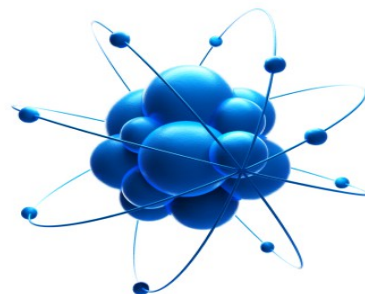
Down

2. protons and neutrons are found in this part of an atom
3. type of force that holds the nucleus of an atom together
4. area of science that studies tiny particles like atoms
5. the word a'tomos comes from this language

ANSWER KEY

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1. What are atoms? **a**
- a. tiny particles that make up all matter
 - b. tiny particles that can only be seen with a microscope
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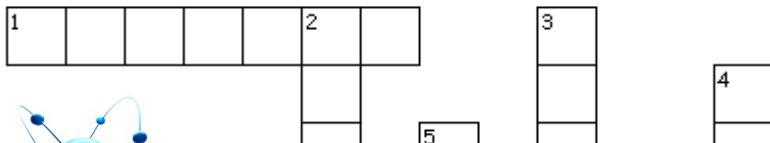
The gnats represent electrons. The person represents the nucleus of the atom.

Something to Think About: If you discovered a new element that was added to the periodic table, what would you name it?

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Vocabulary Crossword



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- the number of electrons in atoms determine an element's ___ properties (**chemical**)
- neutrally charged parts of an atom (**neutrons**)
- a chart which lists all of the known elements (**periodic table**)
- area of science that studies tiny particles like atoms (**quantum mechanics**)
- the word a'tomos comes from this language (**Greek**)