

## Matter Scavenger Hunt

Matter is the substance of which all objects are made. Learn more about matter on the World Book Web and then find the answers to the following questions!

### Find It!

1. How is matter related to inertia?
2. What is the definition of weight as it is used in science and technology?
3. How many quarks are in a neutron?
4. What holds the protons, neutrons, and electrons in an atom together?
5. Give an example of where we see plasmas on earth.
6. What are Bose-Einstein condensates (BEC's)?
7. What happens when a matter particle meets an equivalent anti-matter particle?
8. How have scientists detected dark matter?
9. What scientist discovered the law of conservation of mass (or matter)?
10. What is viscosity?

### Did You Know?

- ◆ CERN is the world's largest research center for the study of subatomic particles. It is located in Geneva, Switzerland. Scientists here do experiments that use particle accelerators - devices that produce beams of subatomic particles of extremely high energies.
- ◆ Shadow matter is a hypothetical form of dark matter that scientists think interacts with ordinary matter only through the force of gravity.
- ◆ Vacuum is a space that has no matter in it.

### Learn More!

- ◆ Click here to see an aerial photo of the Advanced Photon Source (APS) particle accelerator at Argonne National Laboratory near Chicago.  
<http://worldbookonline.com/student/extmedia?id=ar416260&em=pc202492>
- ◆ Click here to see a photo of a particle detector, which helps scientist study subatomic particles.  
<http://worldbookonline.com/student/media?id=pc005191>
- ◆ There are 3 laws that explain how the pressure, temperature, volume, and the number of particles in a gas are related. Read more about them!  
<http://worldbookonline.com/student/article?id=ar217780&st=matter#h3>

## Answer Key

1. All forms of matter have the property of inertia. Mass is the measurement of inertia.
2. Weight is the gravitational force between a planet or other large object and another relatively small object.
3. 3
4. Protons have a positive charge, neutrons have a neutral charge, and electrons have a negative charge. Because opposite charges attract, an electric force holds the atom together.
5. Plasmas can be found in lightning discharges, neon signs, and fluorescent lights.
6. BEC's are clusters of millions of atoms that merge under extreme cold.
7. The two particles destroy each other and are converted into energy.
8. Scientists have detected dark matter through its gravitational force on the motions of visible matter.
9. Antoine Laurent Lavoisier
10. Viscosity is the measure of the resistance of a fluid (liquid or gas) to flow.