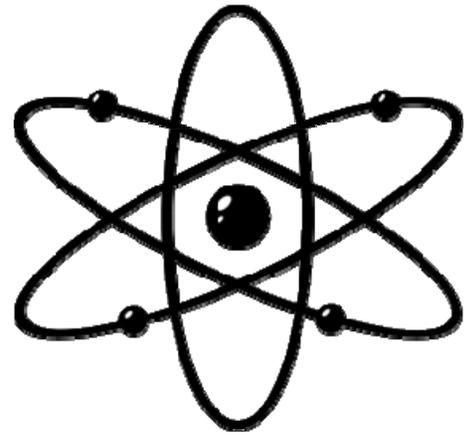


Name \_\_\_\_\_

Date \_\_\_\_\_

## All Things Matter



Matter is anything that takes up space and has mass. An object is a specific item of matter. The property of taking up space means that its volume can be measured relative to another object. Mass is a property of matter that indicates how much force is required to move an object. We normally look at matter as the molecules and atoms that make up material and chemical substances. In addition, subatomic particles such as protons and electrons are also matter.

Density is a measure of the mass of an object divided by its volume. Other properties include temperature. Matter can exist in different states. The energy of matter determines its state. Objects of matter interact.

Some of the characteristics or properties of matter are that matter takes up space and has mass. There are also several variations of matter, such as dark matter and antimatter.

Particles of matter have size and take up space. At the very minimum, all matter has at least three dimensions: length, width and height. This is obvious when you look at many objects around you. They all take up space.

Matter has mass, but mass is harder to define. One definition is that mass measures how much matter there is in an object. Since mass is a fundamental property, like time and distance. Mass is only defined indirectly.

Quantities of matter will attract each other through a gravitation force related to the amount of mass in the objects. Likewise, the inertia of an object is dependent on its mass.

Typically, we use matter as a catchall term related to objects, while we use mass to describe what happens to the matter.

Matter is what makes up all substances. Molecules, atoms and sub-atomic particles are all matter. The major properties of matter are that it takes up space, has mass and attracts other matter with gravity. There are several different opinions on whether or not photons are matter.

Name \_\_\_\_\_

Date \_\_\_\_\_

## All Things Matter Multiple Choice Questions

1. Anything that takes up space and has mass is called \_\_\_\_\_
  - a) Matter
  - b) Body
  - c) Object
  - d) None of the above
2. What is the property of matter that indicates how much force is required to move an object?
  - a) Volume
  - b) Mass
  - c) Size
  - d) Weight
3. Density is the measure of mass of the object divided by its \_\_\_\_\_
  - a) Volume
  - b) Height
  - c) Weight
  - d) Width
4. Quantities of matter attract each other through a \_\_\_\_\_ force.
  - a) Electrostatic
  - b) Gravitational
  - c) Mechanical
  - d) Neutral
5. Photons are considered matter.
  - a) True
  - b) False
  - c) There are different opinions on this statement

Name \_\_\_\_\_

Date \_\_\_\_\_

## All Things Matter

### *Answers*

1. a
2. b
3. a
4. b
5. c

### *Explanation of Answers*

1. Matter is defined as anything that takes up space and has mass. An object is a specific item of matter
2. Mass is a property of matter that indicates how much force is required to move an object.
3. Density is a measure of the mass of an object divided by its volume. Other properties include temperature
4. Quantities of matter will attract each other through a gravitation force related to the amount of mass in the objects
5. There are different opinions on whether photons are matter

Name \_\_\_\_\_

Date \_\_\_\_\_

## All Things Matter Writing Activity

1. Define Matter. What are the two most important properties of matter?

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2. All matter has dimensions. Name any 3 of those dimensions.

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3. What is the difference between matter and mass?

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4. List 5 items that have matter around you.

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