

PROPERTIES OF MATTER**Matusevich M. V.**, student

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How would we describe an orange so that a blind-folded friend could identify it? Using our senses, we might explain its color, sweet taste, and tangy aroma. Such characteristics, or descriptions, are examples of properties of matter. Two important properties of any object are mass and volume. We can use our senses to characterize these properties. For example, our sense of touch tells us that an orange has more mass than a golf ball. Our sense of sight tells us that it has a smaller volume than a bowling ball. If we wanted to be more exact, however, we would measure the mass and volume of the orange. To make measurements, we need instruments. The measurements or other characteristics of the orange are examples of physical properties. A physical property is a property that can be observed without changing the identity of a substance. Mass, volume, shape, and color are just a few physical properties. We make use of the physical properties of objects many times each day. When we receive change for a rouble, how do we check to make sure it is correct? Did we read the coins to see whether “kopeck”, “five-kopeck coin”, or “iron” was written on them? Most people simply observe the physical properties of the coins: their color, size, and mass.

Some properties describe the behavior of a substance when its identity is changed. For example, seltzer tablets fizz when dropped into water. They mix with water and change into bubbles of gas. The candle wax burns in air. It changes into smoke and other materials. Properties that describe the ability of a substance to be changed into new substances are chemical properties. If you have ever baked a cake, you may have used baking powder. The latter mixes with cake batter. Some of the substances in the baking powder change into bubbles of a gas called carbon dioxide. You observe this property of baking powder only when the powder combines with cake batter and changes into another substance. The ability to release carbon dioxide when mixed with batter is a chemical property of baking powder.